FlsunSlicer User Manual

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一. Preface

1.Overview

3D printing technology plays an increasingly important role in the manufacturing industry today, and slicing software for 3D printers is one of the key tools for realizing 3D printing. Slicing software is the process of dividing a 3D model into layers suitable for 3D printing, providing the necessary printing paths and parameter settings.
FlsunSlicer is a software tool specifically designed for 3D printers. It is responsible for slicing 3D models into thin layers suitable for layer-by-layer accumulation by 3D printers to achieve an accurate and efficient printing process. Its main features include model import, slicing settings, path generation, support structure generation, preview, and export, etc. Users can use these functions to slice 3D models and adjust various parameters to meet specific printing needs. For example, users can set parameters such as print layer height, filling density, support structure, printing speed, etc., to achieve the best results for different materials and printing objects.

FlsunSlicer has an intuitive user interface and a wealth of feature options. It also supports the import and export of various file formats, such as STL, OBJ, AMF, etc., making it easy for users to import and process various sources of 3D models and export the sliced data to 3D printers for printing.

In addition to basic slicing functions, FlsunSlicer also provides some advanced features, such as automatic support structure generation, simulation preview, material optimization, etc., further improving printing efficiency and quality.

In summary, slicing software for 3D printers is an indispensable and important tool in the 3D printing industry. It promotes the development and application of 3D printing technology by processing 3D models through slicing, providing efficient and accurate printing paths for 3D printers.

2.Purpose of Writing

This document is the user manual for the FlsunSlicer slicing software, designed to help you understand this slicing software in more detail. Of course, with the continuous popularization and development of 3D printing technology, we will also continue to evolve and improve, striving to provide users with a better printing experience and service!

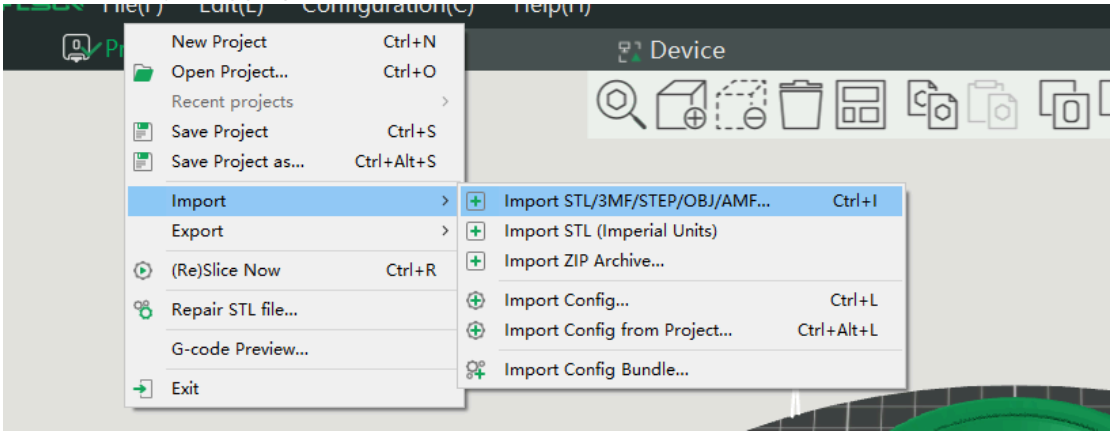
2. Manu

1.File Import and Export

1.1 Import Model File

Navigate to the top of the interface to > File > Import, supporting the import of STL, 3mf, step, obj, and amf format model files;

Additionally, there are two other ways to import models: the top operation "Add Model" and by dragging the model file on the desktop to the heated bed with the mouse;



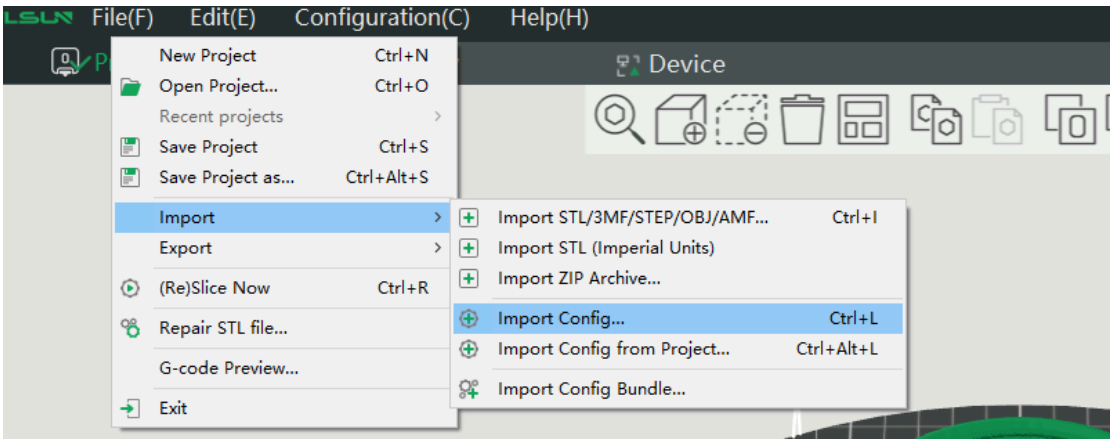
1.2 Import Custom Configuration File

Navigate to the top of the interface to > File > Import, there are three possible options for importing custom configuration files:

Import Configuration: Import a single configuration file. This option accepts .ini files and also accepts .gcode files. When importing a configuration file via G-code, it must be sliced using FlsunSlicer.

Import Configuration from Project: Import a single configuration file from a project file. This option only accepts projects saved with FlsunSlicer, in formats such as .3mf and .amf.

Import Configuration Package: Import all configuration settings from multiple configuration files. This option accepts .ini files.



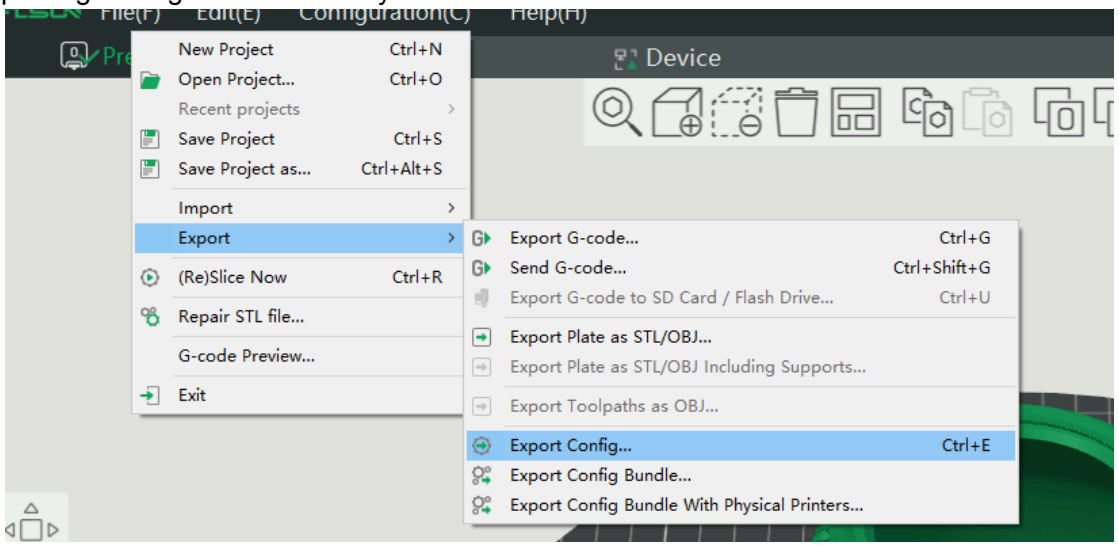
1.3 Export Custom Configuration File

Navigate to the top of the interface to > File > Export. There are three possible options for exporting custom configuration files:

Export Configuration: Export the current configuration file.

Export Configuration Package: Export all custom settings saved in the current version of FlsunSlicer.

Export Configuration Package with Physical Printer: Export the configuration package along with the API key and IP address.

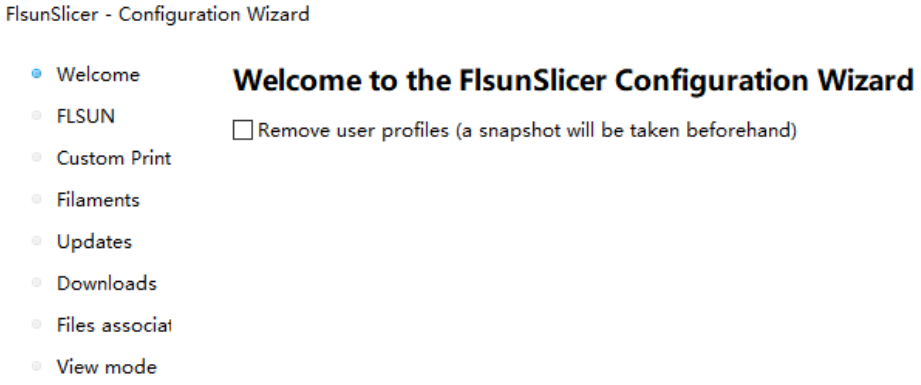


2.Configuration Item Description

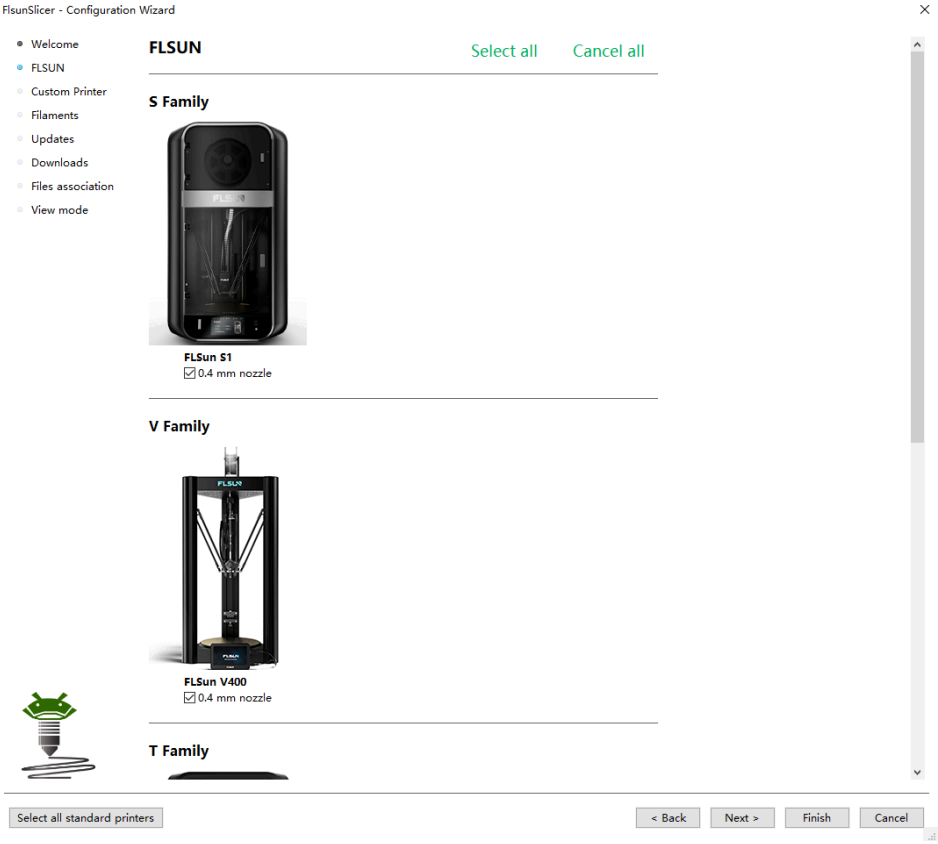
2.1 Configuration Wizard Interface

When you first start FlsunSlicer, you will arrive at the Configuration Wizard interface, or you can manually launch the Configuration Wizard from the "Configuration -

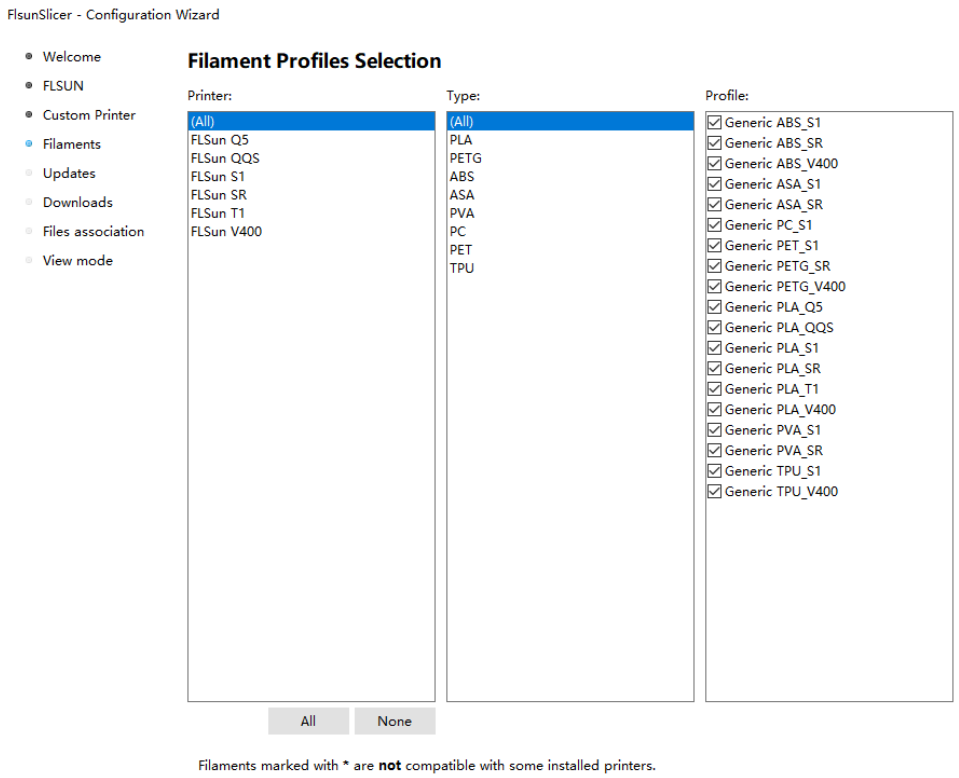
Configuration Wizard" in the menu at the top of the interface.



Click on the FLSUN option to select the printer configuration file you wish to import.



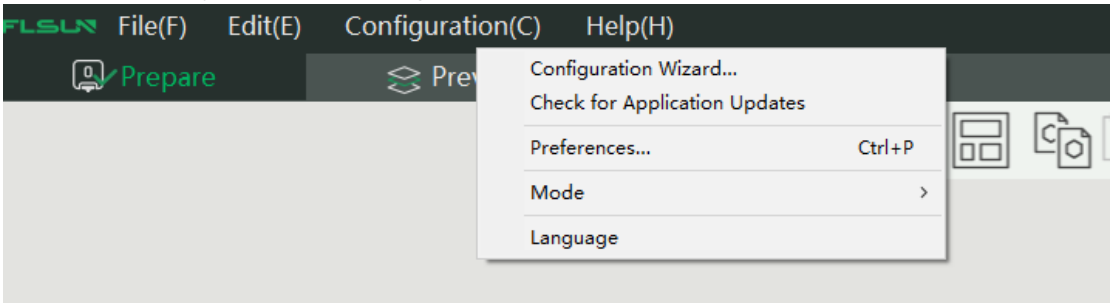
Click on the material option to select the materials required by the printer, with the default being all selected.



Selecting "All Standard Printers" means selecting all printers and all materials.

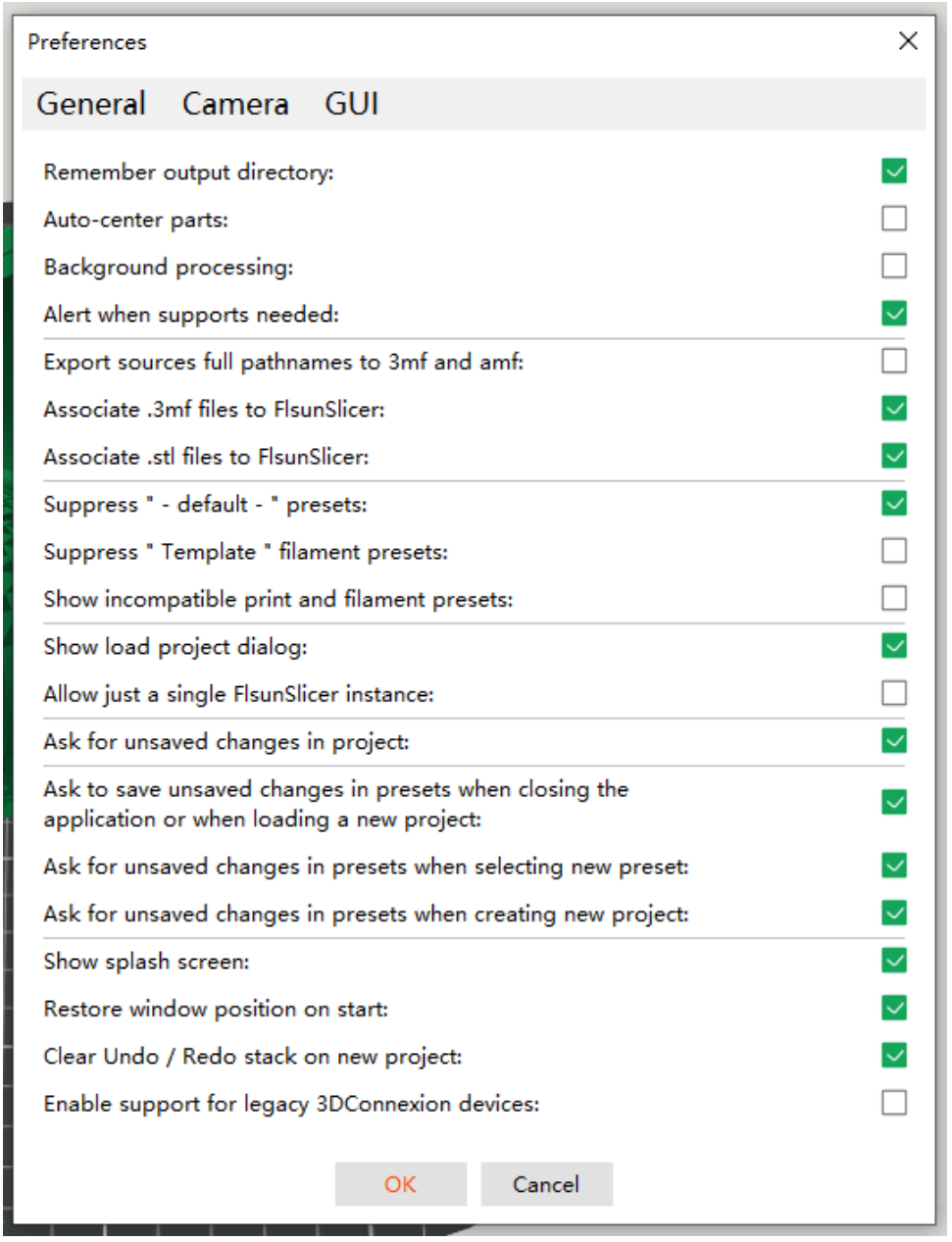
2.2 Check for Application Updates

Used to manually check if the program can be updated.



2.3 Preferences

You can access the Preferences interface through the configuration item in the menu at the top of the interface or by using the shortcut Ctrl+P.



2.3.1 "General" Item Description

Remember Output Directory:

By default, this option is checked. When enabled, FlsunSlicer will prompt the last output directory instead of the directory containing the input file.

Auto-center Part:

By default, this option is not checked. When enabled, FlsunSlicer will automatically place the object around the center of the print bed, with the relative positions of the

objects remaining unchanged. Please note that when there is only one object on the turntable and "Auto-center" part is turned on, the object cannot be moved on the print bed because it will always snap back to the center.

Background Processing:

By default, when the user clicks the "Slice Now" button or switches to preview, the G-code generation will start immediately. With background processing enabled, G-code is generated after the model is loaded. Therefore, in most cases, switching to preview will immediately display the G-code preview and estimated print time.

If you need to switch back and forth between settings and G-code preview (for example, when adjusting support settings), background processing is particularly useful. Whenever a change is detected on the disc (such as moving the model, creating a copy of the model), the relevant part of the G-code will start updating in the background.

Export Full Path Names to 3mf and amf:

By default, 3mf project files are configured not to save the full path of the source model, as this may pose (minor) security risks when sharing such files. Enabling it will make the disk reload, and it will work even when reopening the 3mf file without prompting the user to search for the model in the file system. For more information, please refer to the article on reloading from disk.

Associate .3mf Files with FlsunSlicer:

When enabled, this will add an option in your operating system to use "FlsunSlicer to open 3mf files" by default. The next time you try to open a 3mf file, the operating system is likely to receive a prompt.

Associate .stl Files with FlsunSlicer:

When enabled, this will add an option in your operating system to use "FlsunSlicer to open STL files" by default. The next time you try to open an STL file, the operating system is likely to receive a prompt.

Automatically Update Built-in Presets:

When enabled, FlsunSlicer will download updates for built-in system presets (print, material, and printer configuration files) in the background. These updates are downloaded to a separate temporary location. When new preset updates are available, they will be offered at application startup.

Disable "-Default-" Preset:

By default, this option is checked. If any valid print/material/printer configuration files are available, the "default" empty configuration file will be hidden from the drop-down menu.

Show Incompatible Print and Material Presets:

When checked, even if the print and material configuration files are marked as incompatible with the currently selected printer, they will be displayed.

Show Load Project Dialog:

When you drag and drop a 3mf project file into FlsunSlicer, if enabled, the system will ask whether you want to load only the model or load and select the printer/material/print configuration file.

Allow Only One Instance of FlsunSlicer:

When enabled, only one instance of FlsunSlicer can be run at a time. This means that opening files associated with FlsunSlicer will only add the model to the currently running instance of FlsunSlicer. When disabled, you can completely independently run multiple PS instances at once. If your computer is not very powerful (cheaper laptops), running multiple instances at the same time may slow down your computer.

Require Saving Unsaved Changes in Presets When Closing the Application or Loading a New Project:

If enabled, when closing FlsunSlicer, the system will always ask what action you want to take regarding unsaved changes and configuration files. You can choose "Remember my choice" the next time this happens, so that the selected operation will be automatically repeated in the future.

Ask About Unsaved Changes in Presets When Selecting a New Preset:

If enabled, when switching to a selected preset, the system will always ask what action you want to take regarding unsaved changes. One of the options is "Transfer" settings, which is particularly useful if you want to keep some of the currently selected settings (such as keeping support open). You can choose "Remember my choice" the next time this happens, so that the selected operation will be automatically repeated in the future.

Ask About Unsaved Changes When Creating a New Project:

If enabled, when creating a new preset, the system will always ask what action you want to take regarding unsaved changes.

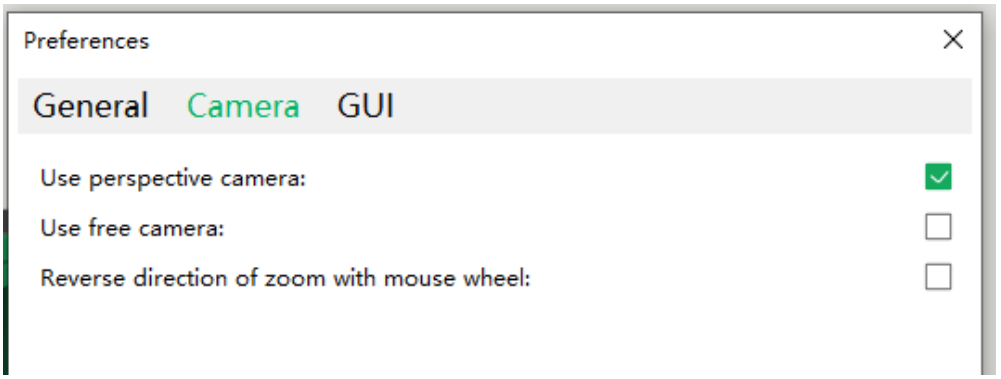
Show Startup Screen:

Disabling the startup screen will not make FlsunSlicer start faster.

Clear Undo/Redo Stack on New Project:

If enabled, loading a new project will erase the undo/redo history.

2.3.2 "Camera" Item Description



Use Perspective Camera - By default, this item is checked

The perspective camera will provide you with more information about depth, with distant objects appearing smaller than nearby objects. The perspective view is what the human eye sees in the real world.

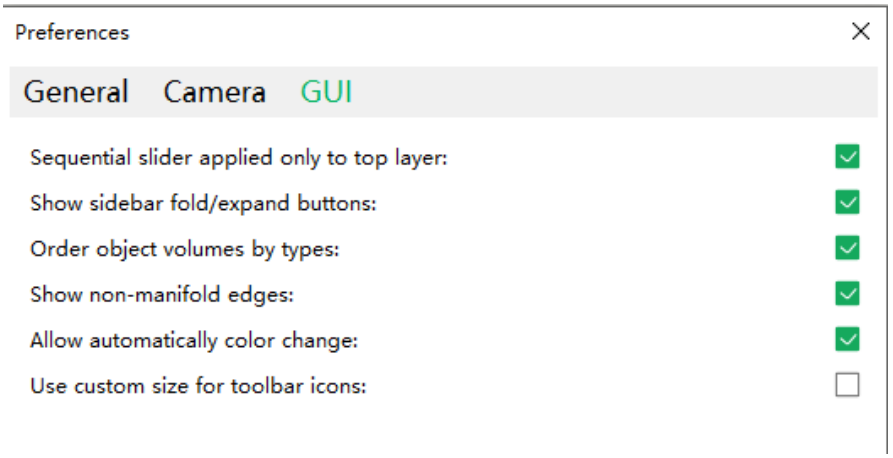
Use Orthographic Camera – By default, this option is not checked

This option is not checked The orthographic camera is more commonly used in engineering. All objects are displayed at the same scale, parallel lines remain parallel, and length units on the drawing will always display the same length at any position. This makes it easier to judge relative sizes and align models.

Reverse Zoom Direction with Mouse Wheel – By default, this item is not checked

If enabled, scrolling up will zoom out, rather than in, and vice versa.

2.3.3 "Graphics Interface" Item Description



Apply Sequential Sliders Only to Top Layer:

When enabled, the horizontal slider at the bottom of the preview will only affect the top visible layer. If disabled, the slider will complete all current visible print moves.

Show View Bar Collapse/Expand Button:

If enabled, the collapse/expand sidebar button will be visible. However, even if the button is not visible, you can always use the keyboard shortcut Shift+Tab. This feature is very useful on devices with smaller screens or when taking full-size screenshots of G-code previews.

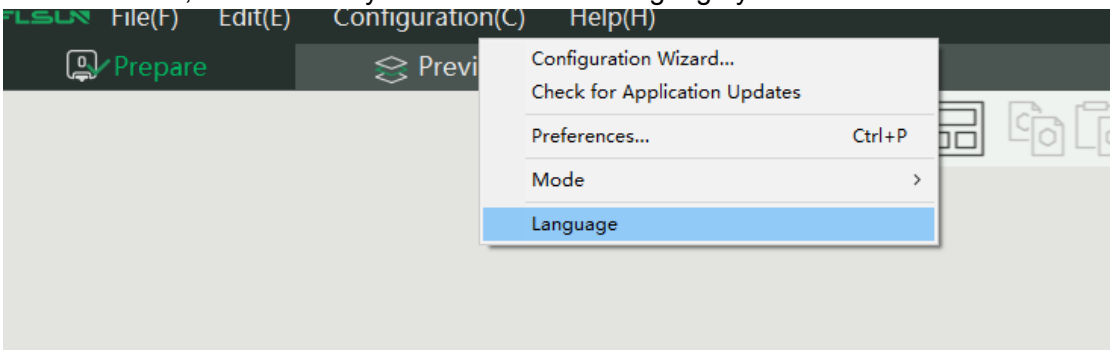
Sort Object Rolls by Type:

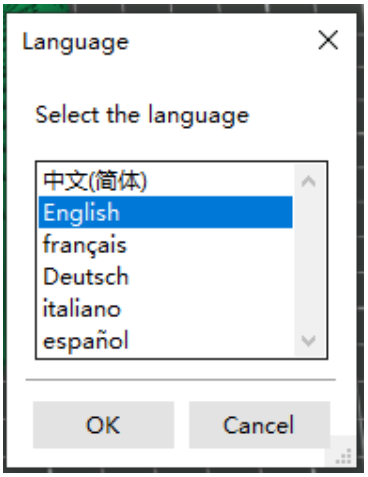
If enabled, the order of objects in the object list will always be model parts, negative volumes, modifiers, support blockers, and support enforcers. If disabled, you can freely reorder. However, one model part always needs to be in the first position.
Use Custom Size for Toolbar Icons:

Both the top and left toolbars will automatically scale according to the DPI reported by the operating system. You can manually override this scaling and use the slider to set a different scale.

2.4 Language

You can find the language item through the configuration item in the menu at the top of the interface, which allows you to switch to the language you want to use.

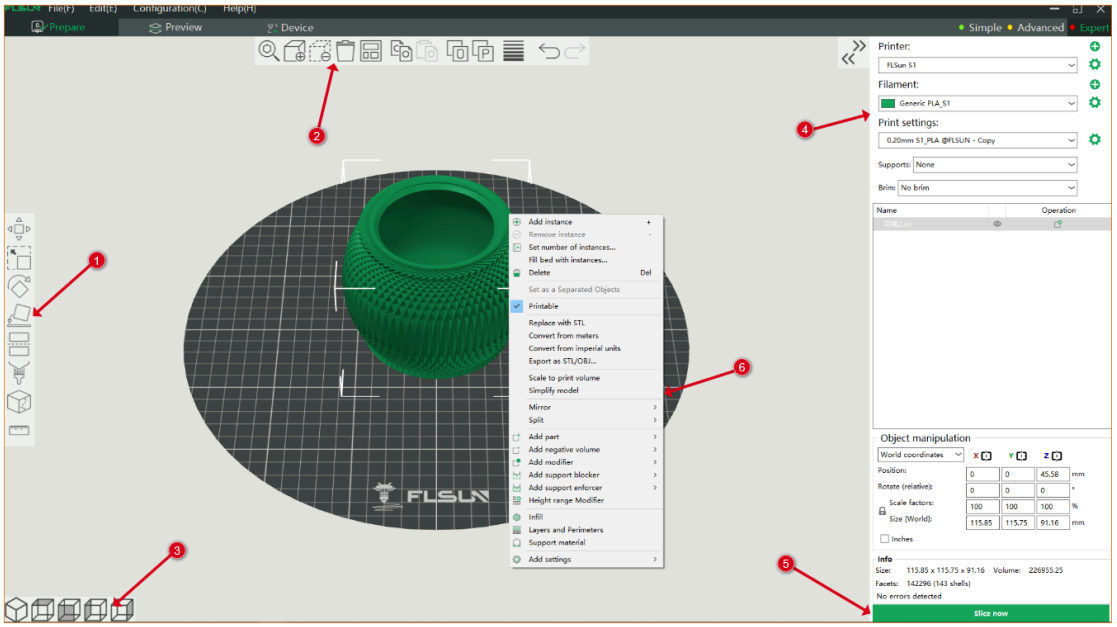




This software only supports six languages: Chinese, English, French, German, Spanish, and Italian.

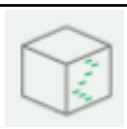
3. User Interface

1.Preparation Page

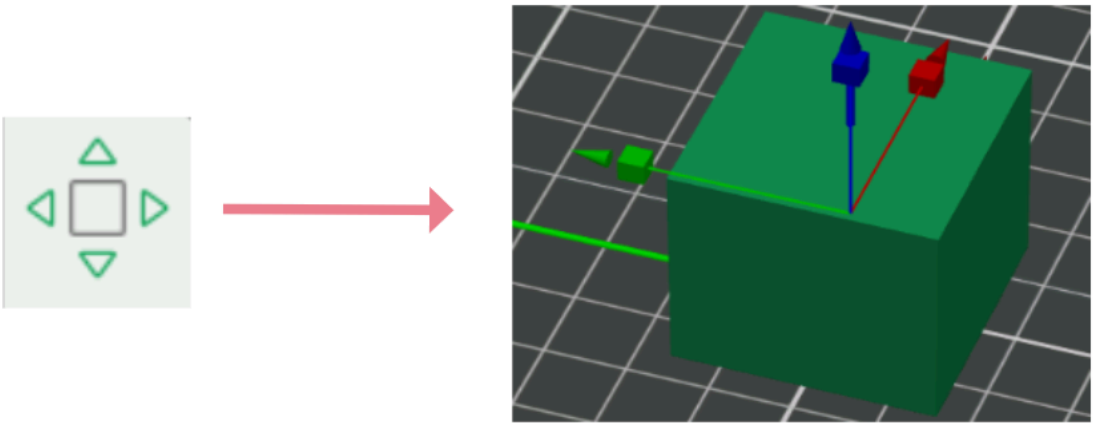


1.1 Left Toolbar

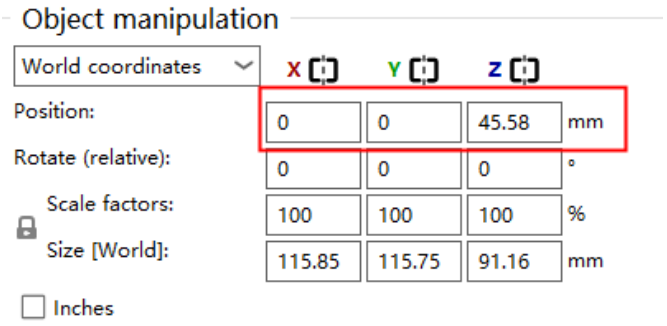
Buttons	Name	Content
	Move	Supports moving by dragging with the mouse or moving through coordinates, for details see 1.1.1;
	Zoom	Supports zooming by dragging with the mouse or zooming through coordinates, for details see 1.1.2;
	Rotate	Supports rotating by dragging with the mouse or rotating through coordinates, for details see 1.1.3;
	Place on Plane	Supports selecting a face with the mouse as the base, for details see 1.1.4;
	Cut	For details see 1.1.5;

	Draw Support	For details see 1.1.6;
	Seam Drawing	For details see 1.1.7;
	Measure	For details see 1.1.8;

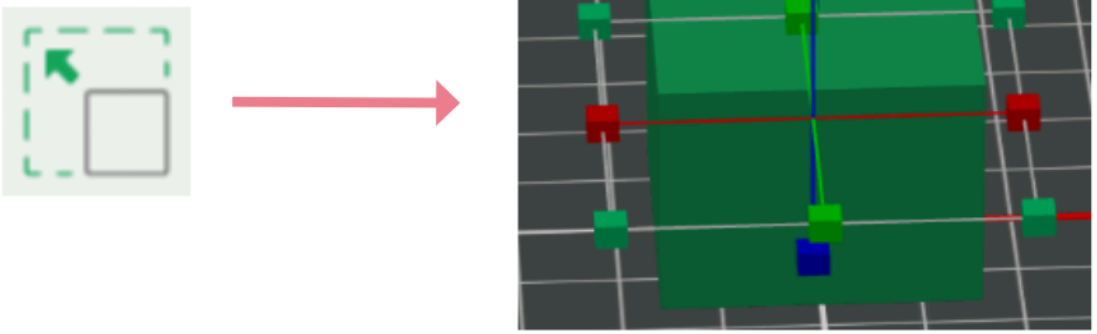
1.1.1 Move



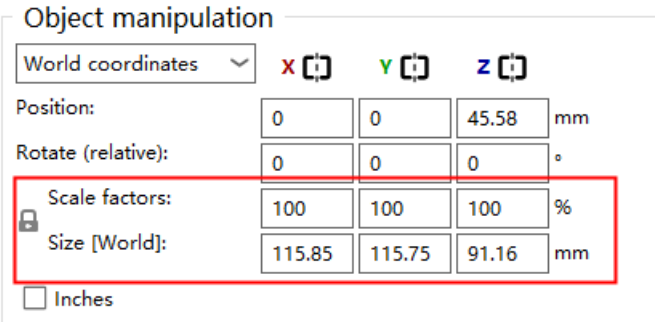
Even if the move tool is inactive, objects can be moved by dragging with the left mouse button. Enabling the move tool will display 3D controls, allowing users to adjust the position of the object on the X, Y, or Z axis, and the system also supports moving by entering coordinates and pressing enter.



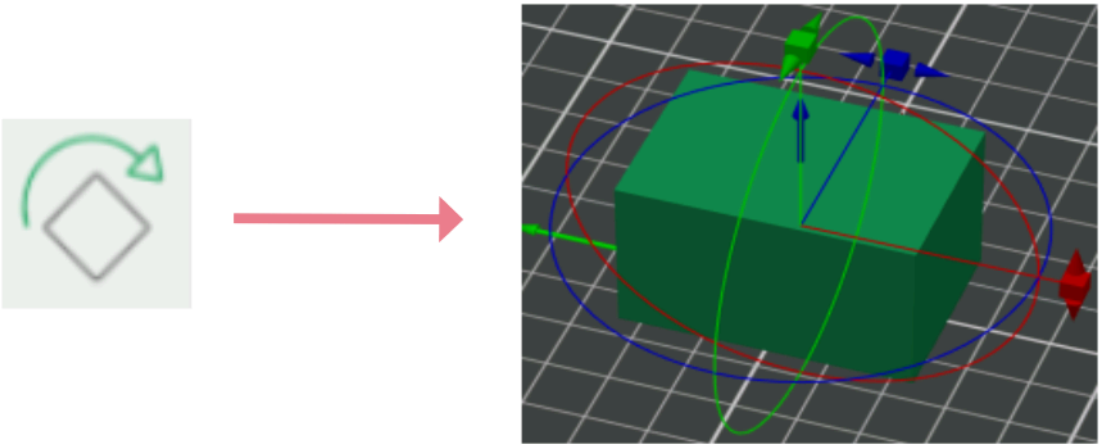
1.1.2 Scale



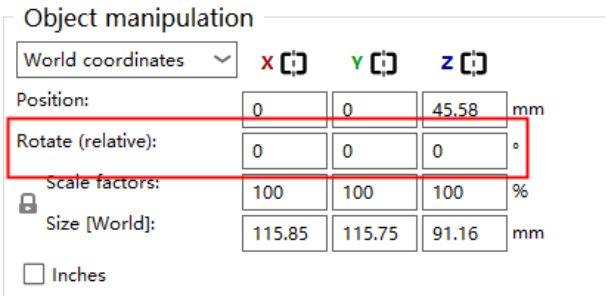
The scale tool displays 3D controls, allowing users to stretch the object around the X, Y, or Z axis. Once a user grabs one of the axis handles, they can stretch the model's size in that direction, and the system also supports scaling by entering a scale ratio and specific dimensions and pressing enter.



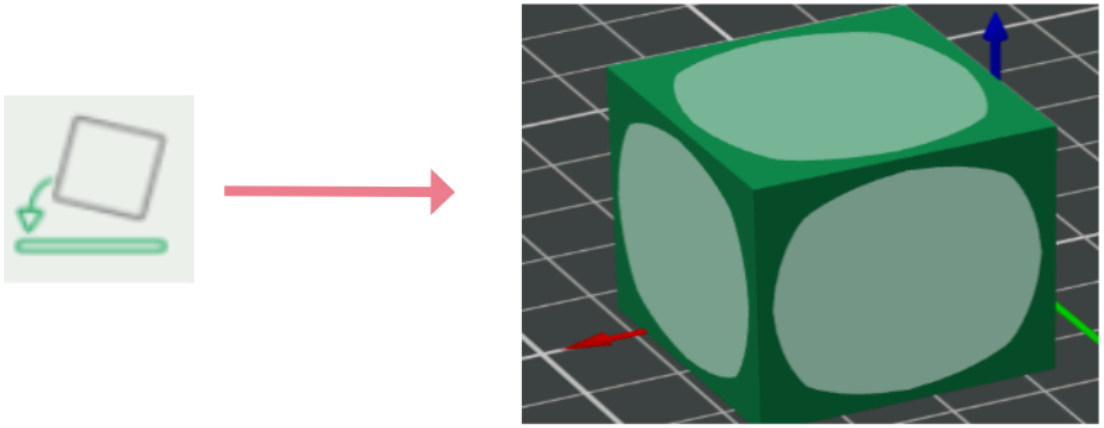
1.1.3 Rotate



The rotate tool displays 3D controls, allowing users to rotate the object around the X, Y, or Z axis. Once a user grabs one of the axis handles, two sets of white circular guides will appear. Hovering the mouse over these guides will change the rotation from smooth steps to discrete steps, and the system also supports rotating by entering an angle and pressing enter.

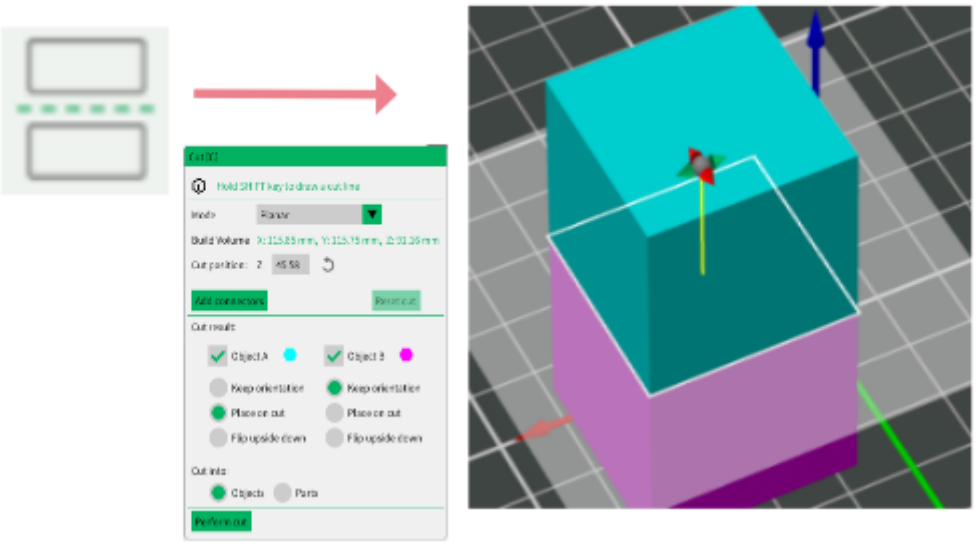


1.1.4 Place on Plane



Place the selected plane onto the heated bed.

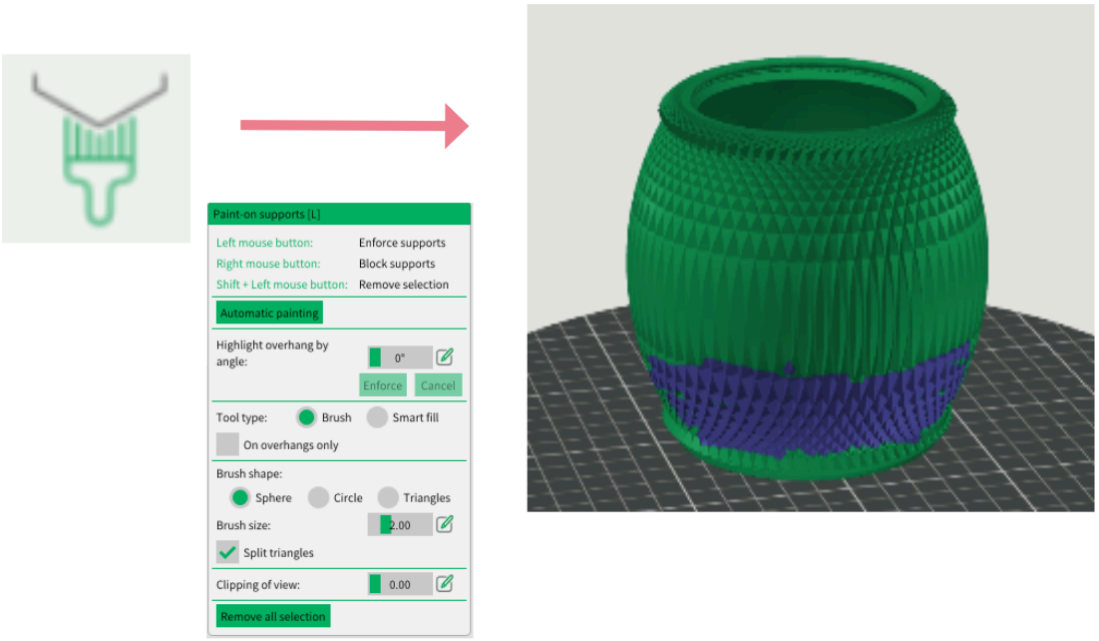
1.1.5 Cut



Select an object and press the C key or select the cut tool from the left toolbar. A 3D widget and context menu will appear. Use the widget to drag the cutting plane to the desired position. To set the cutting plane position, you can also enter precise values [mm]

in the context menu. To change the rotation of the cutting plane, use the arrows at the top of the widget.

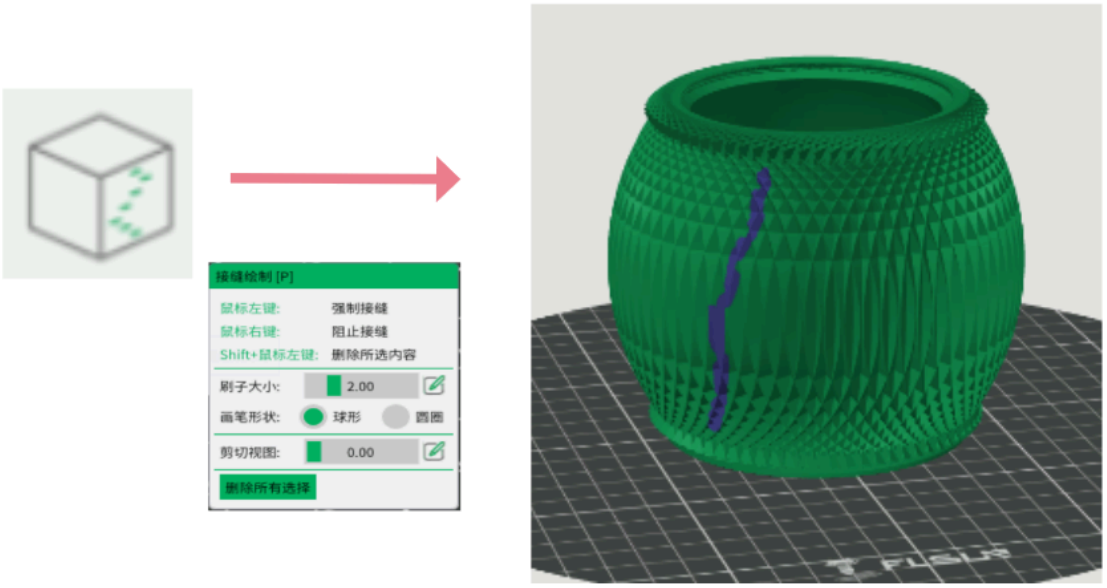
1.1.6 Draw Support



This feature allows you to paint directly on the object and select areas where support should be enforced or prevented.

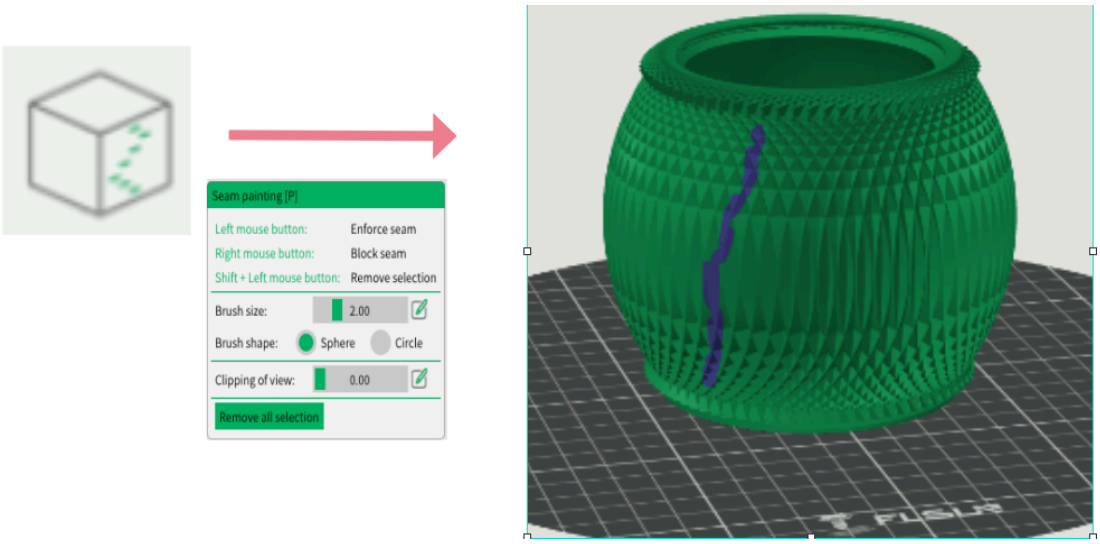
This tool can be used from the left toolbar and is only displayed in Advanced and Expert modes. After selecting an object and clicking the toolbar icon, all other objects will be hidden so they do not obstruct the view, and the selected object will be presented in light gray to ensure contrast.

1.1.7 Seam Drawing



Seam positions can be set in "Print Settings" to try to hide seams in corners, randomize seam positions, or align them with the back of the model. The seam drawing tool provides more detailed control over seam placement. This tool can be accessed from the left toolbar and is only displayed in Advanced and Expert modes. After clicking the icon, users can draw "seam enhancers" or "seam blockers" on the model in a similar way to drawing supports.

1.1.8 Measure



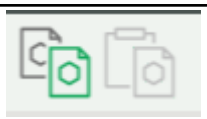
This measuring tool uses geometric detection algorithms to identify points (vertices), edges, circles, and planes. Users can directly check the dimensions and angles of the model in FlsunSlicer.

The measuring tool allows you to uniformly scale objects to the desired length by clicking on the measured distance in the scene.

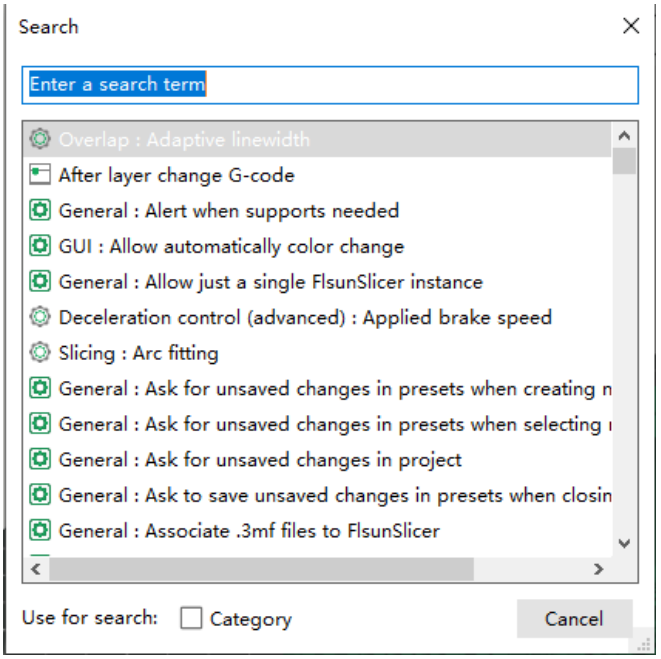
You can measure the distances and angles between different parts of a single object for better alignment, but you cannot measure the distances and angles between separate objects.

One of the current limitations of this tool is its behavior with objects that have overlapping parts. In this case, parts are considered individually, meaning that edges created by intersections are not detected, and planes hidden within other parts are detected. The tool also does not handle negative volumes considered as parts very well.

1.2 Top Toolbar

Buttons	Name	Content
	Search	Search for parameters to quickly access specific setting pages and parameter fields, for details see 1.2.1;
	Add	Mainly used to add print models;
	Delete	Used to delete the selected model on the heated bed;
	Organize	Supports automatic organization of models on the disc, for details see 1.2.2;
	Copy/Paste	Select one or more models, then use the buttons in the top toolbar or the familiar shortcuts Copy/Paste them Ctrl+C/Ctrl+V
	Split into Objects/Parts	Parts Can split a model into multiple objects or parts, for details see 1.2.3;
	Variable Layer Height	Use different layer heights to print different areas of the model and automatically smooth the transitions between them. This can significantly reduce printing time while minimizing the impact on print quality, for details see 1.2.4;
	Undo/Redo	Click the "Undo" or "Redo" button and select a point in the history to undo or redo multiple steps at once, for details see 1.2.5;

1.2.1 Search



This feature allows you to search for parameters to quickly access specific setting pages and parameter fields. It can be accessed from the top toolbar and the print/material/printer parameter pages, or by using the familiar Ctrl+F shortcut. If you are in Simple mode, the search will only search for parameters and settings visible in Simple mode.

1.2.2 Organize

When you import multiple models or create multiple instances of the same model,arranging them on the print bed can be very time-consuming. FlsunSlicer has an automatic arrangement tool that distributes objects across the entire print bed, leaving a reasonable gap between objects. It can be launched by pressing the A key or by selecting "Auto Arrange" from the top toolbar.

Right-clicking the "Auto Arrange" icon in the top toolbar will open a dialog box for adjusting the distance between objects and allowing objects to rotate around their Z-axis during the arrangement process. As a result, you will be able to install more parts on the print platform.

You can set the spacing with a slider, or by holding Ctrl+left mouse button and clicking on the text field to enter an exact value.

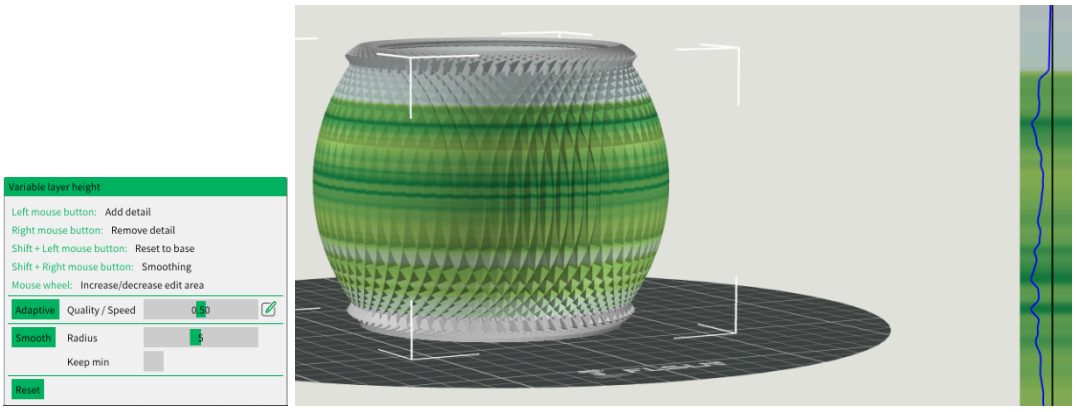
The current spacing and rotation settings also affect the "Fill bed with instances" feature.

1.2.3 Split into Objects/Parts

Split into Objects: Create a separate object for each shell; place each newly created object on the print bed.

Split into Parts: Retain a single model object in the scene, but create multiple parts, even if the parts are floating in mid-air above the print bed, the parts still retain their original positions.

1.2.4 Variable Layer Height



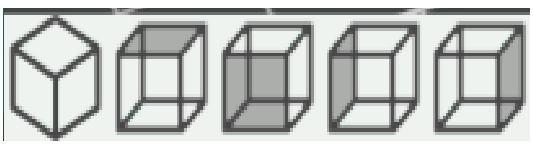
Define different areas of the model to be printed with different layer heights and automatically smooth the transitions between them. This can significantly reduce printing time while minimizing the impact on print quality.

1.2.5 Undo/Redo

All operations accessible from the 3D editor view are irreversible, including object selection, operations on the sidebar (adding modifiers, changing their properties), except for switching between print, filament, and SLA material profiles.

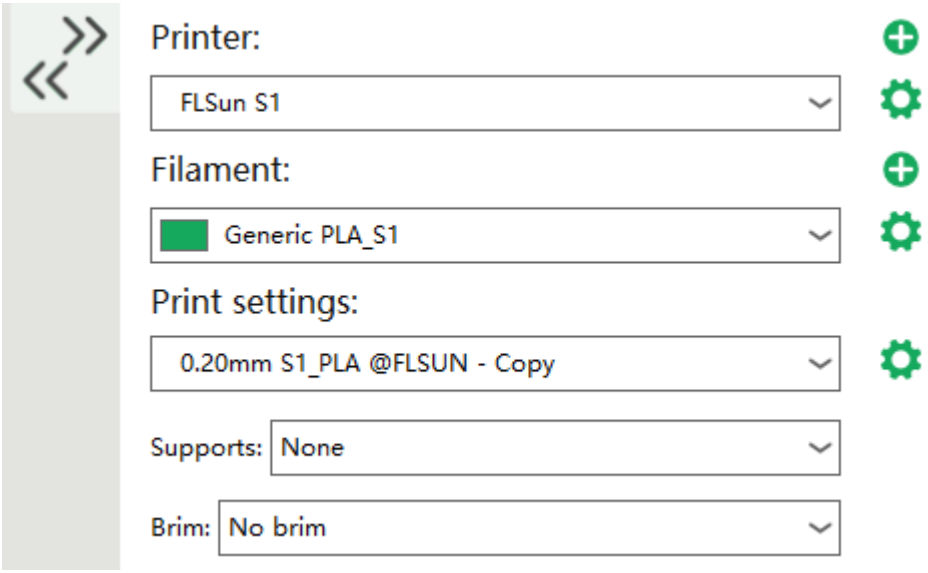
You can undo or redo multiple steps at once by right-clicking the "Undo" or "Redo" button and selecting a point in the history. Since each snapshot is assigned an expressive name, it is easy to determine direction even in a long series of operations.

1.3 Bottom Toolbar

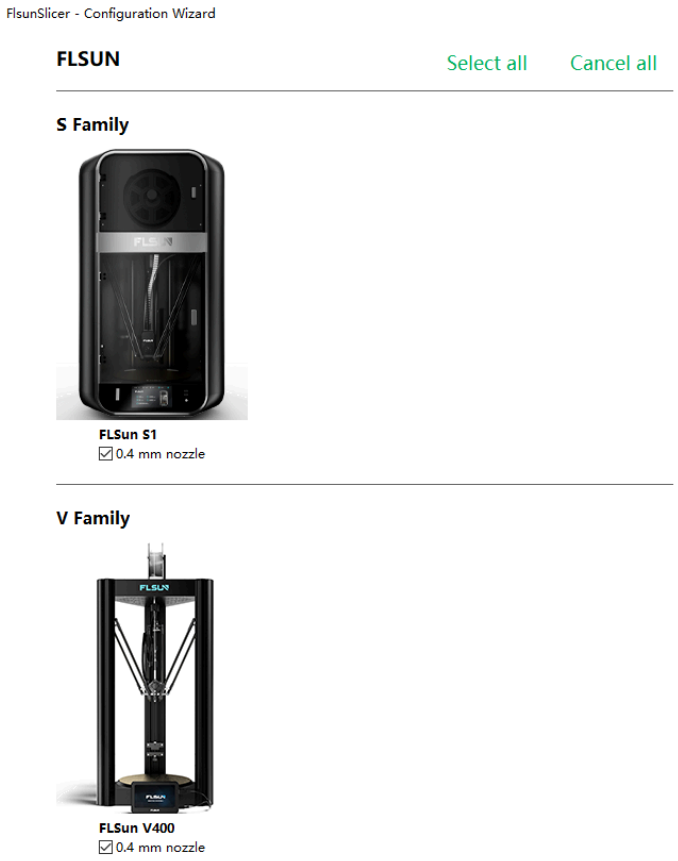


From left to right in order: Isometric view, top view, front view, left view, right view.

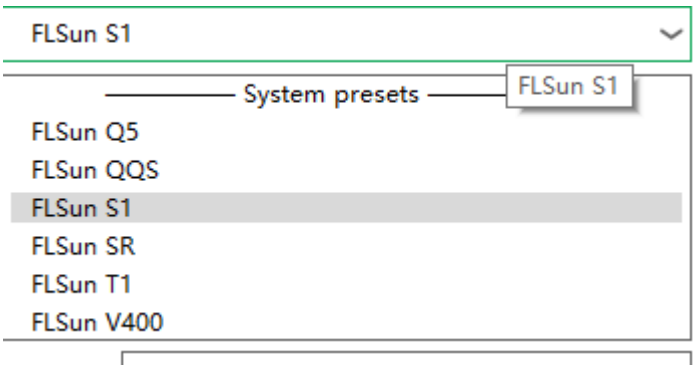
1.4 Parameter List



1.4.1 Add Printer

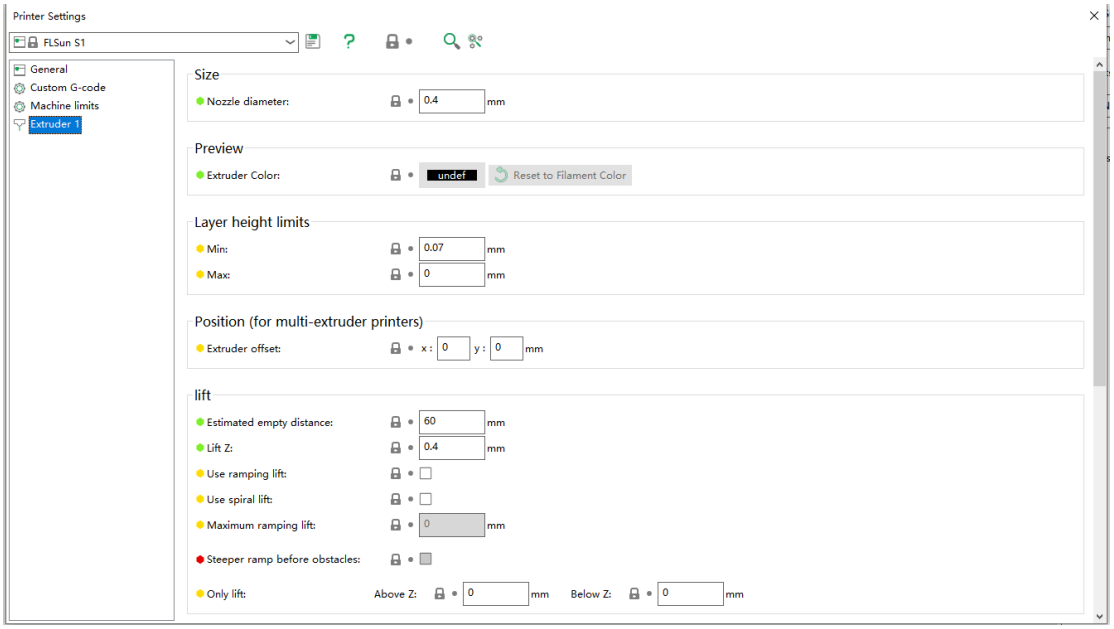


Add and remove printer buttons, after clicking, it will enter the printer selection interface, supporting single selection and multiple selection;



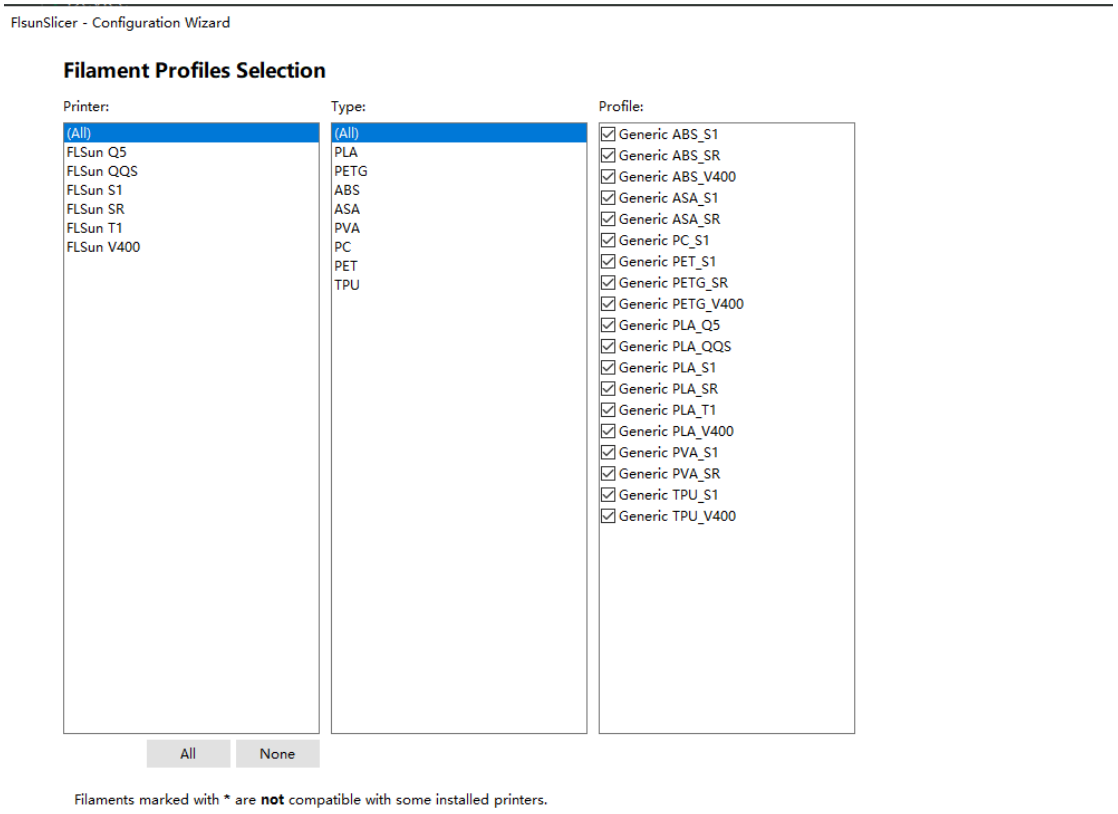
Clicking on the printer drop-down option box is used to select different printer parameters, this option comes from the printer selection in the configuration wizard;

1.4.2 Printer Parameter Settings

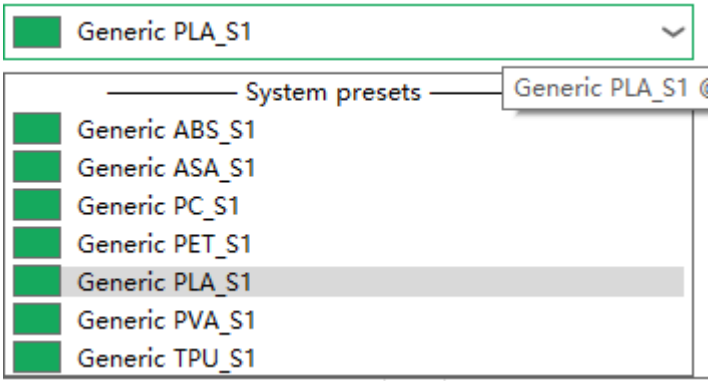


Printer settings support settings for general, machine limitations, and extruders, mainly including print platform size and height settings, device maximum speed, acceleration, jerk settings, extruder nozzle diameter, layer height limits, lift height range, retraction, and printer hardware-related settings;

1.4.3 Add Material

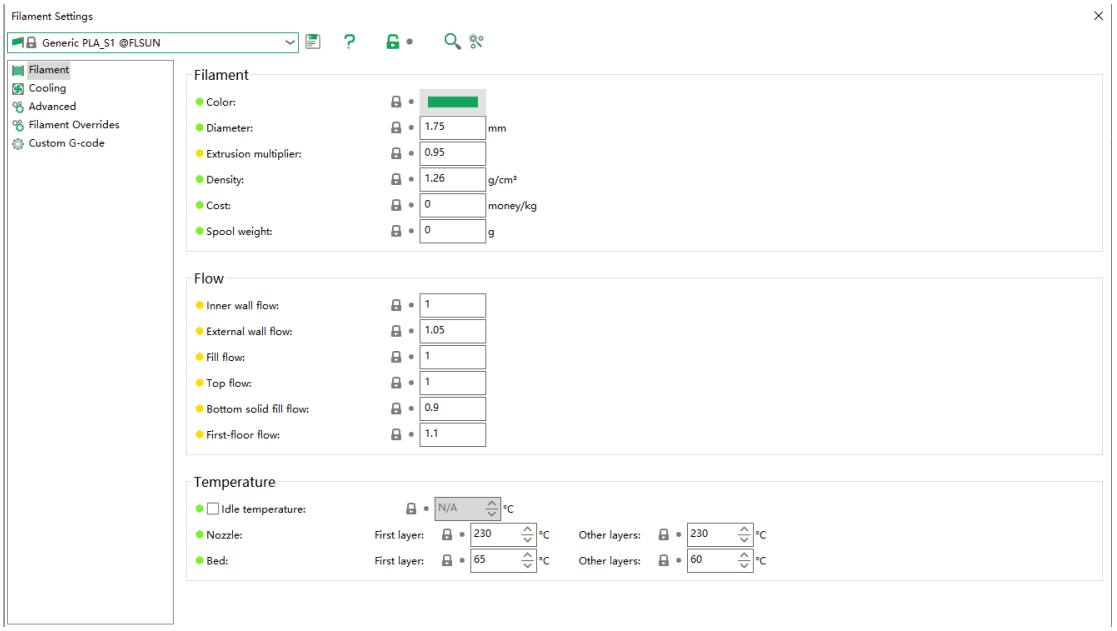


After selecting the printer model, you can select the material type to add the system-defined material;



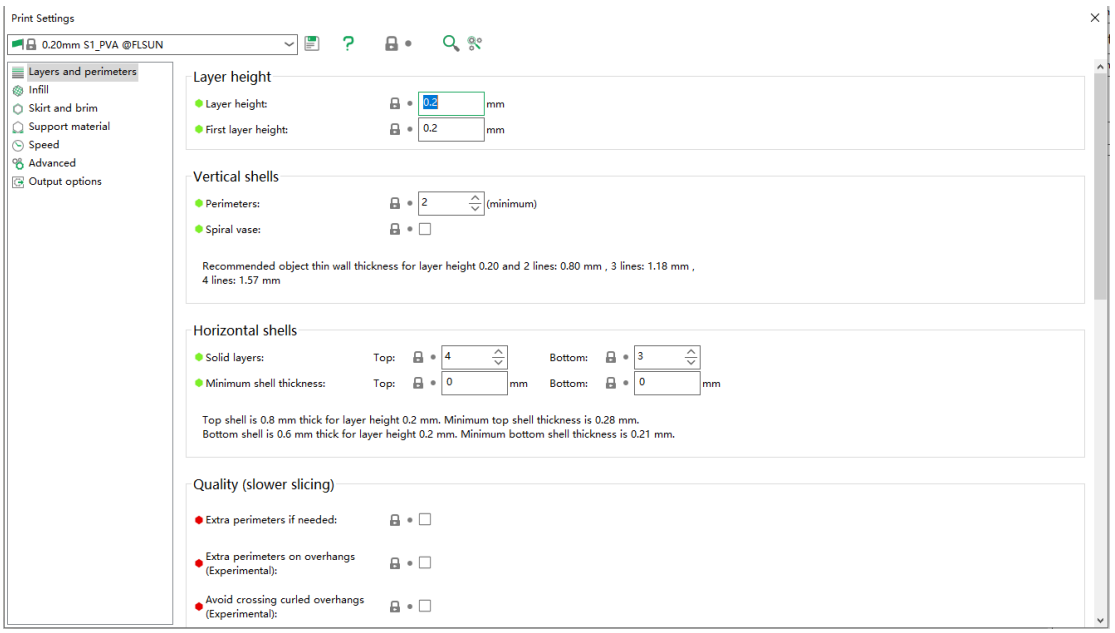
Clicking on the material drop-down option box is used to select different material parameters, this option comes from the material selection in the configuration wizard;

1.4.4 Material Settings



Material settings support settings for basic material information, flow rate, temperature, cooling, empty travel lift, retraction, and other related settings;

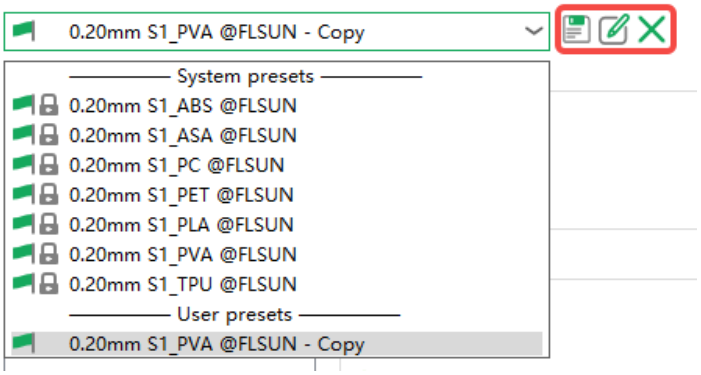
1.4.5 Print Settings



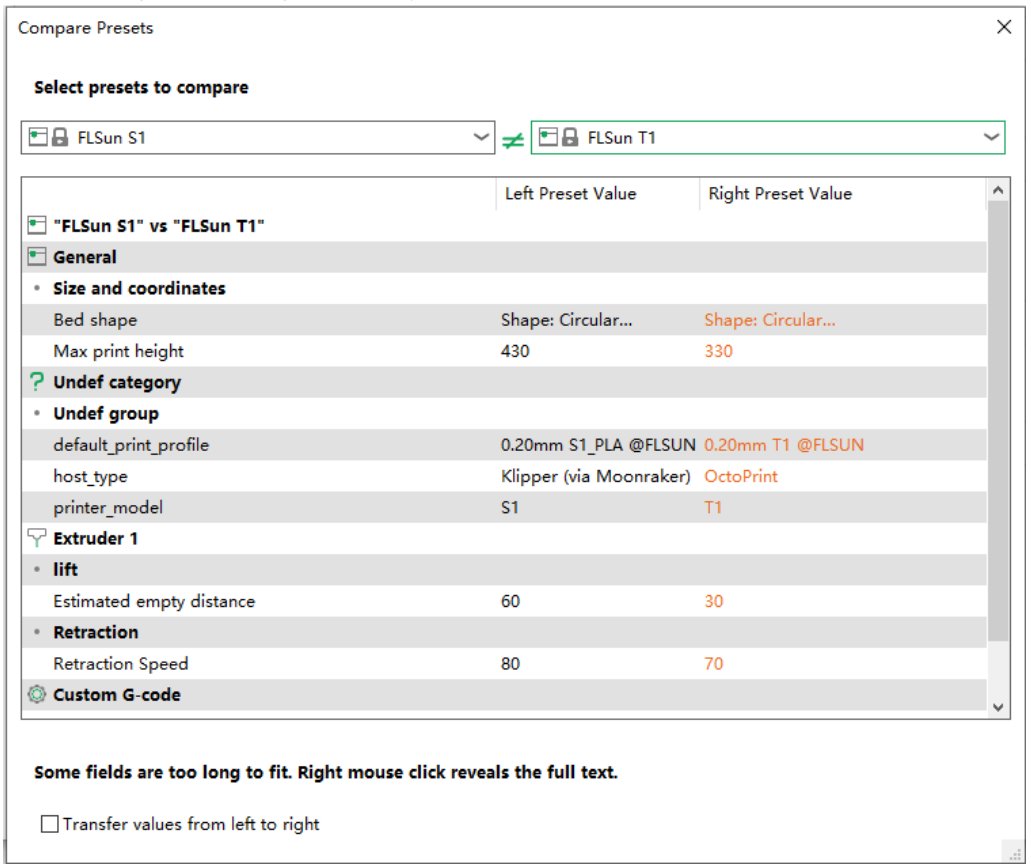
Print settings mainly affect the overall print effect, including settings for layer height, shell, fill, support, speed, etc. To enhance user convenience, FlsunSlicer has placed the more commonly used supports and skirts outside, which are consistent with the support and skirt functions in print settings and have interactivity;

1.4.6 Settings Menu Items

In printer settings, material settings, and print settings, there are functions to save presets, restore defaults, search for parameters, and compare presets;

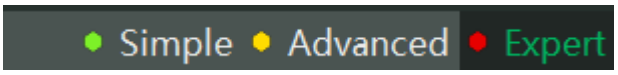


After adding and saving presets, you can edit and delete presets;



Compare presets to view different parameters and specific parameter values for different models of equipment;

1.5 Modes



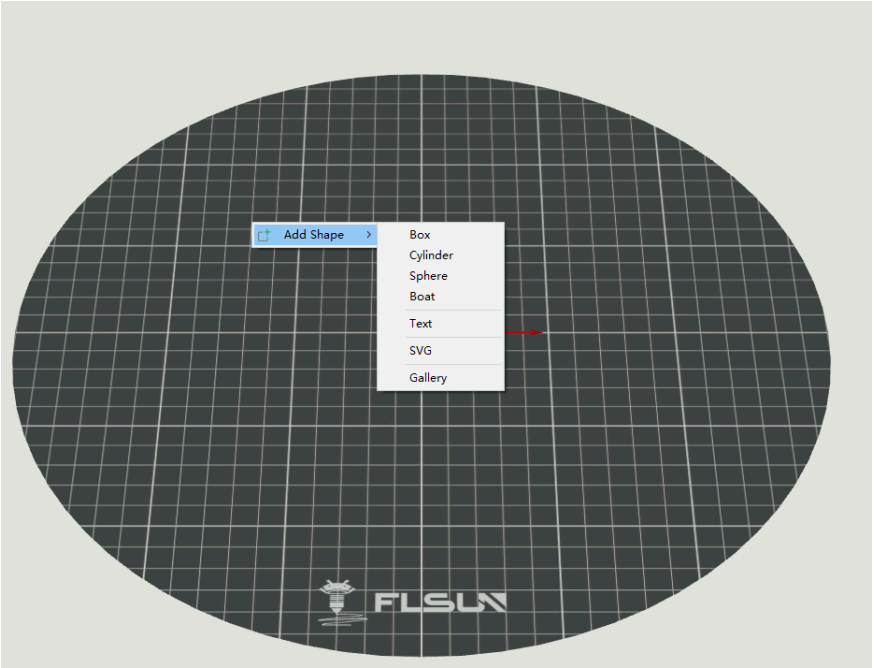
The appearance of the user interface will change depending on the mode you are in. You can switch to different modes using the buttons in the right panel or go to: Configuration - Mode - Simple/Advanced/Expert:

Simple mode is to reduce the learning curve for beginners and to organize the user interface for casual users, hiding complex features such as modifier grids, and only displaying a basic subset of parameters for users;

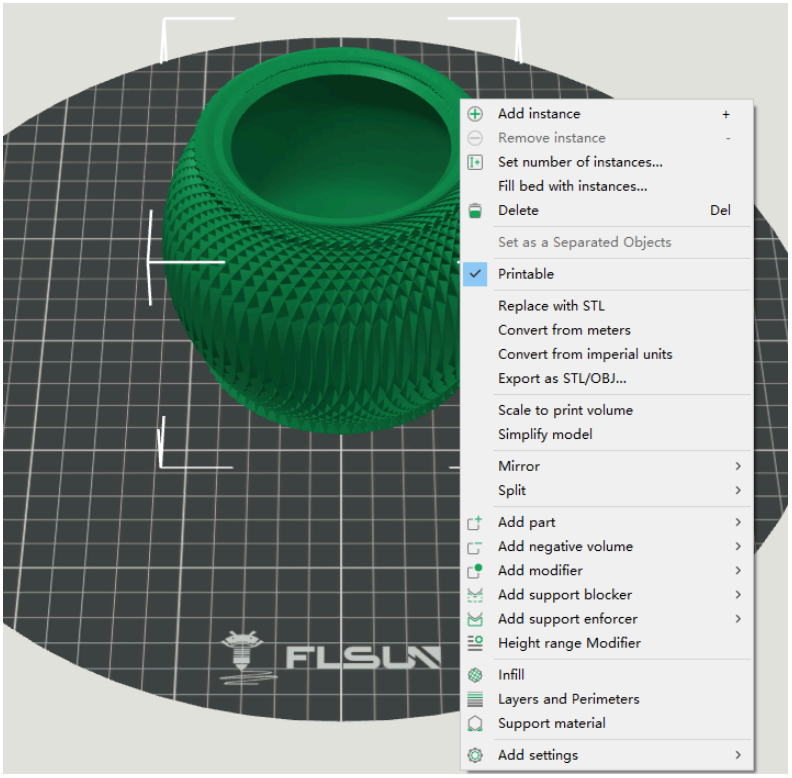
In Advanced mode, more parameters are displayed, and you can improve print quality by adjusting more parameters;

In Expert mode, all parameters are displayed, and you can adjust the print effect through all parameters.

1.6 Object Operation Panel



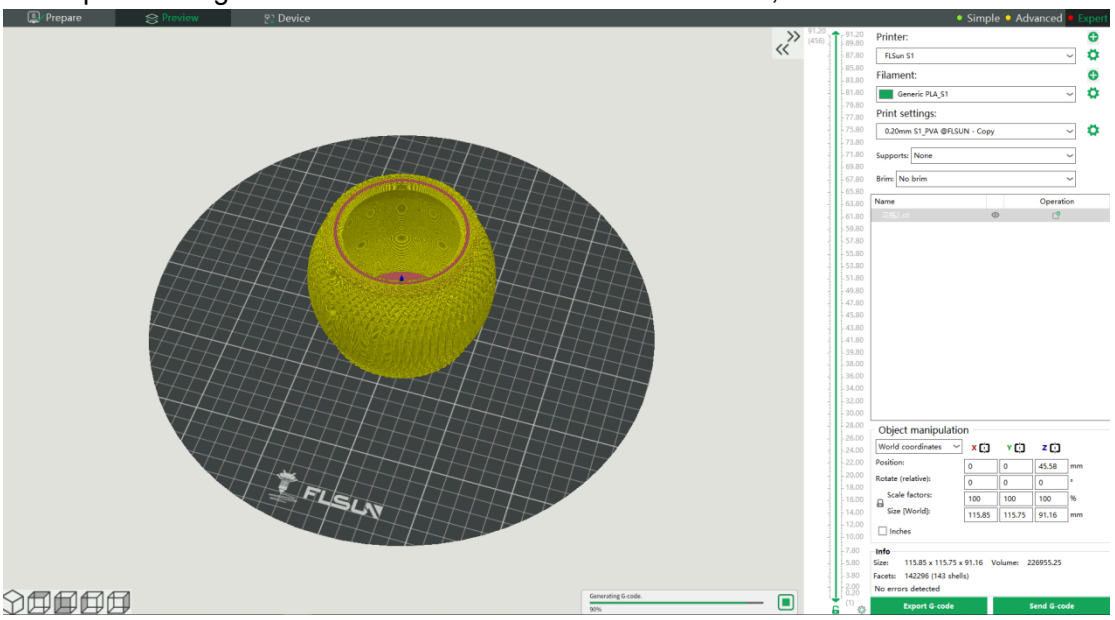
When there is no model in the disc, right-clicking the mouse can add a model. After adding the model, the operation object theme options will appear in the lower right corner of the interface, allowing you to quickly modify parameters such as position, angle, and size.



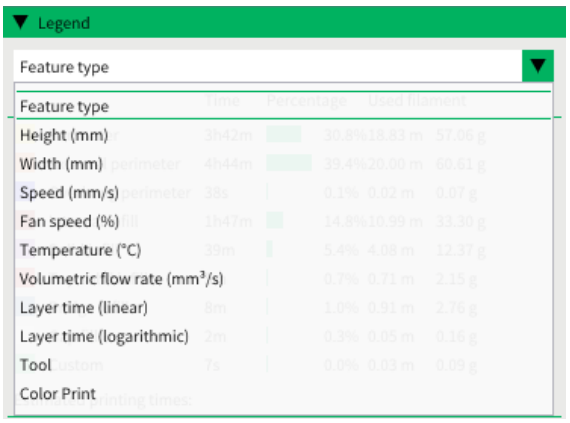
When there is a model in the heated bed, right-clicking the mouse will have additional settings in addition to adding instances, including setting instances, deleting, scaling print volume, mirroring, etc. In Advanced mode, it supports adding parts, adding support shielding, etc., and in Expert mode, it supports adding object settings;

2.Preview Page

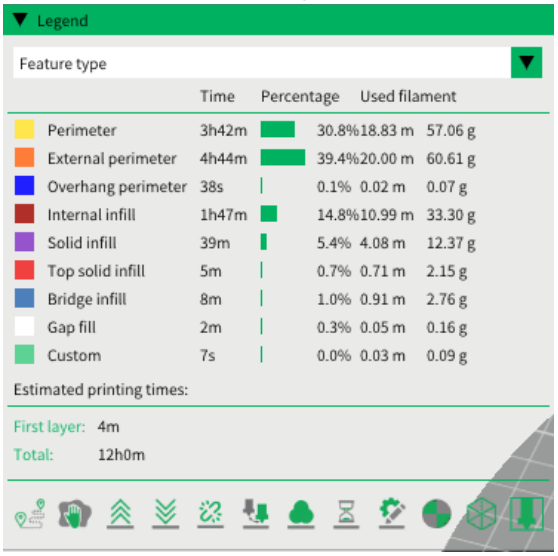
After the model parameters are set, click "Slice Now" or switch to the preview page to complete slicing. It will take a certain amount of time to slice;



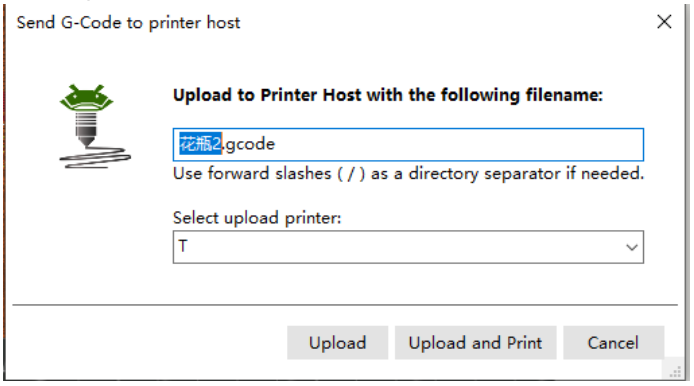
After slicing, you can view the G-code file information, including function type, height, width, speed, etc.;



The default display is the function type, which includes the time required for printing at different locations, the weight of the consumed material, the estimated print time, etc.;

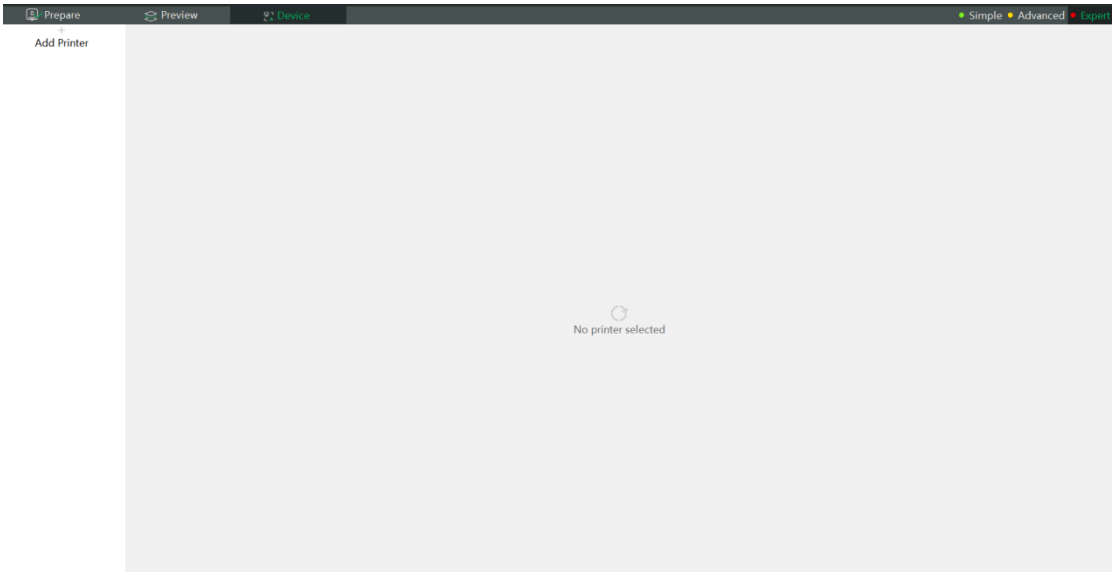


The G-code file supports exporting to the required location, and also supports sending the file to the selected printer;



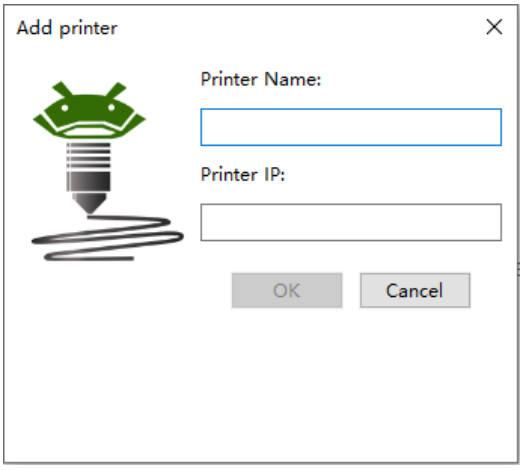
Select the printer by name, click upload to upload the G-Code file to the selected printer, and upload and print to upload the G-Code file to the selected printer and start printing directly.

3.Device Page



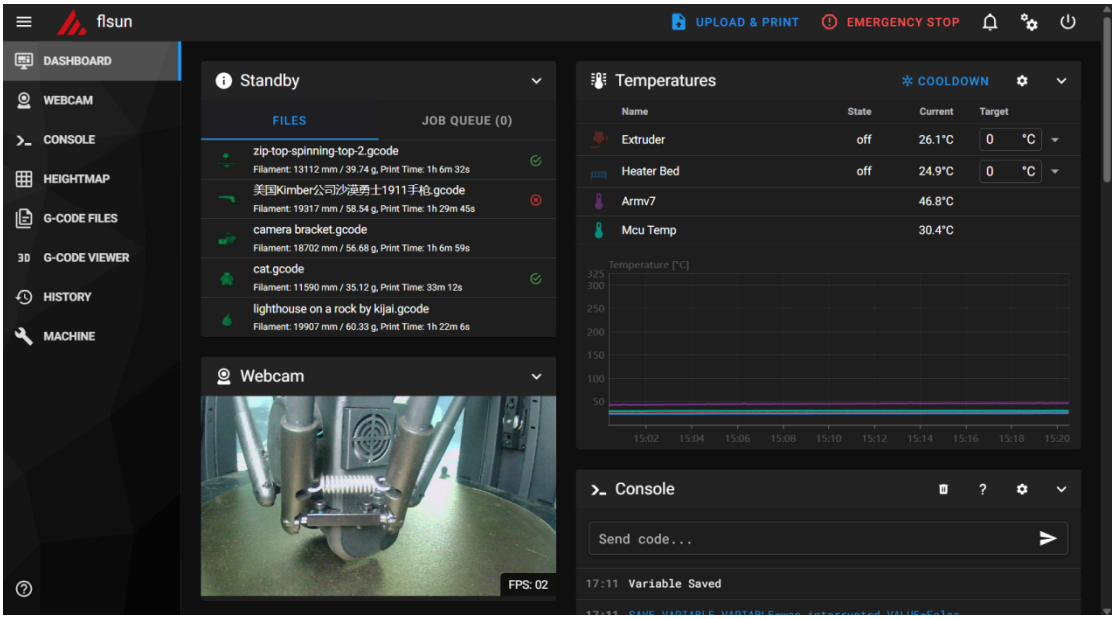
The left side is the device list, supporting the addition of devices, and the right side is the printer control window, used to view and control the printer.

3.1 Add Device



Click "Add Device" to display the printer name and printer IP when adding, click OK to connect to the printer;

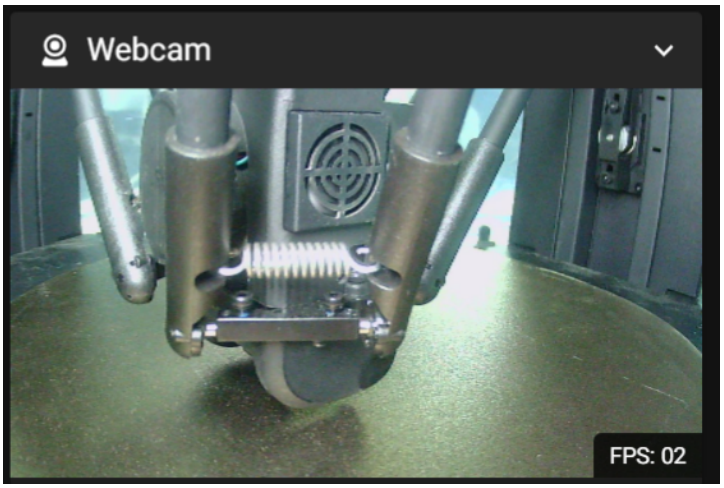
When the right side shows an inaccessible prompt, please check the network speed of the printer's network and whether the printer's connected network and the slicing software's network are the same;



When the printer device control and monitoring screen appears on the right side, it indicates that the printer is connected successfully. At this time, you can remotely send print files, remotely control, and remotely monitor;

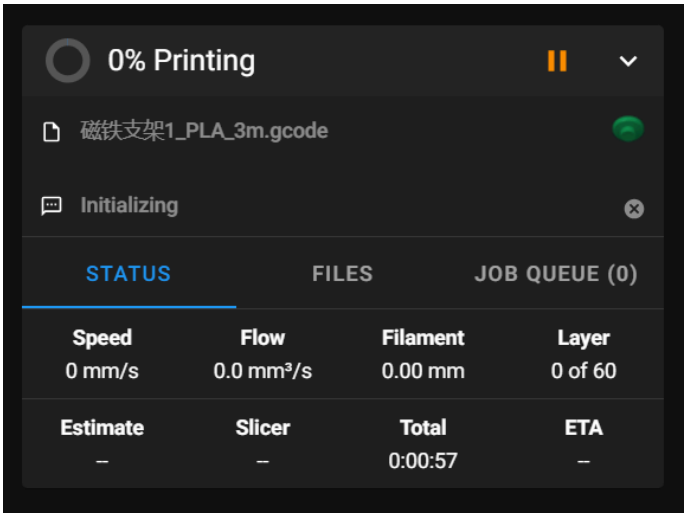
3.2 Device Control/Monitoring

3.1.2 Video Monitoring



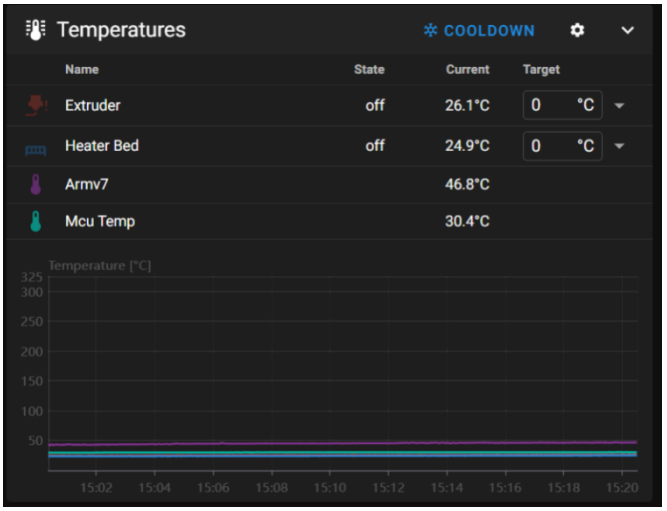
The camera area in the control panel and the camera tab page can both view the camera shooting the printer screen;

3.1.3 View Print Tasks



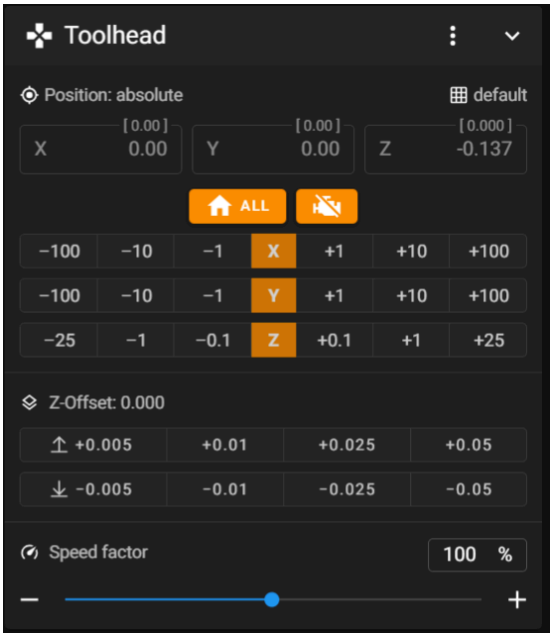
When printing, the task list area in the control panel can view the current print file information and print information, including print speed, flow, time, etc., while also supporting remote pause printing; it also supports viewing the history of printed files and task queues;

3.1.5 View and Modify Temperature



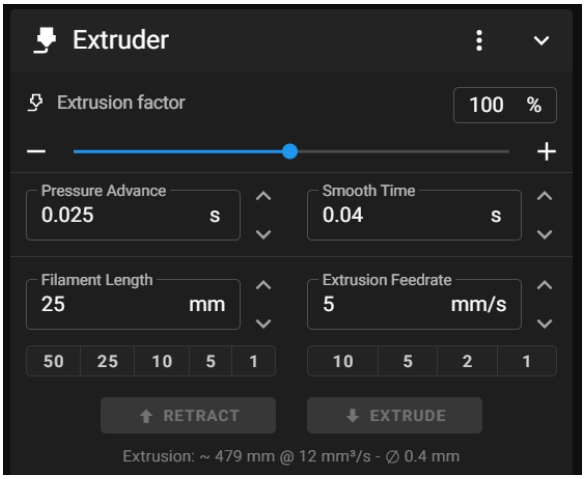
You can view the current device's nozzle temperature, heated bed temperature, chip temperature, and MCU temperature in real-time, and also allow users to modify based on the current nozzle temperature and heated bed temperature, and preheat according to the new temperature;

3.1.6 Print Head Settings



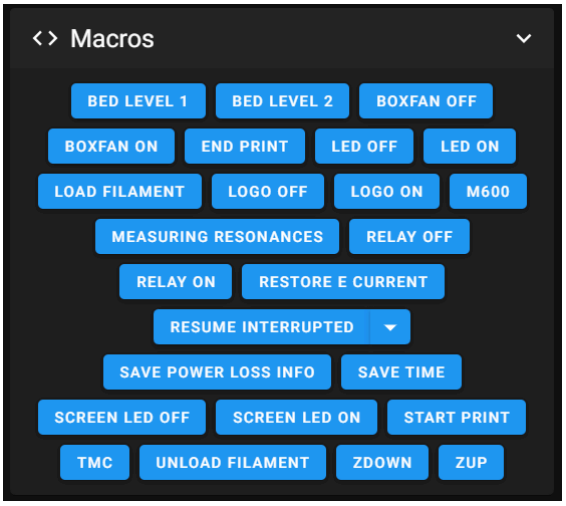
Users can move the axis, go home, set Z-axis offset, and adjust print speed multiplier in the print head settings;

3.1.7 Extruder Settings



Users can perform feeding, retraction operations in the extruder settings, and also set extrusion multiplier, set pressure advance, smoothing time, material length, and feed speed;

3.1.8 Macro Operations

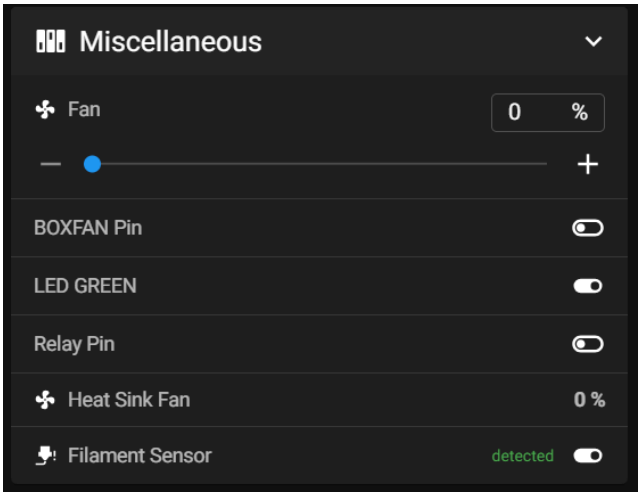


Users can complete automatic leveling, turn on/off LED lights, pause/start printing, Z-axis lifting/lowering, and other operations in macro operations;

3.1.9 Speed Settings

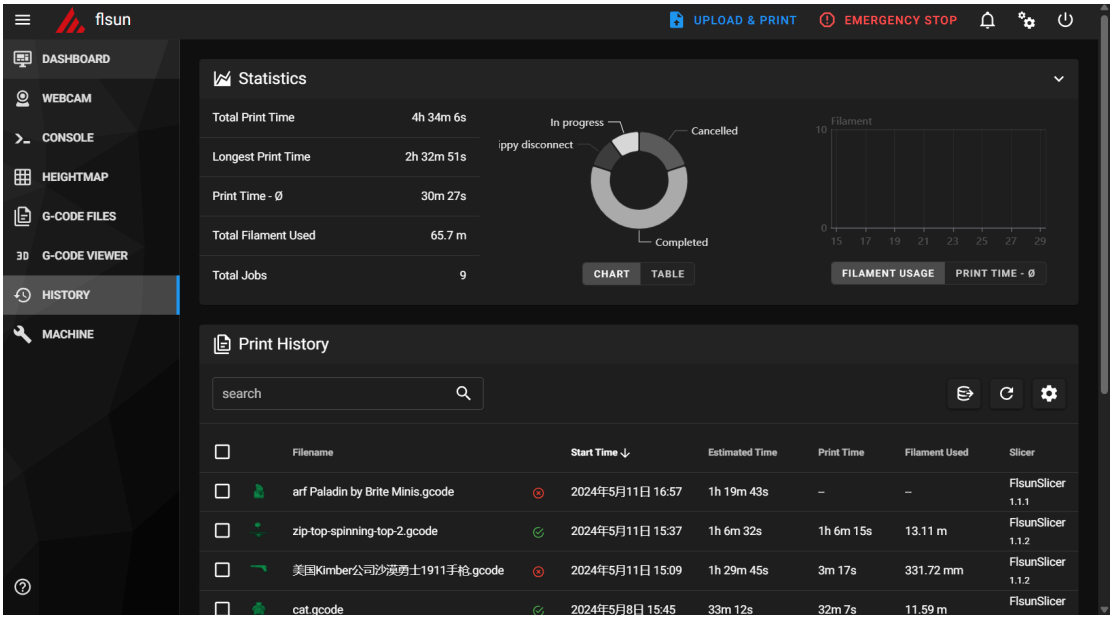
Users can adjust print speed and acceleration in the machine settings;

3.1.10 Other Settings



Users can adjust the rotation speed of the box fan, enable filament runout detection, and other operations in other settings;

3.1.11 View History



Users can view the details of previous print records in the history;

四. Acknowledgements

When using slicing software, please remember to keep the software updated and maintain contact with the manufacturer to obtain the latest features and technical support. Also, regularly back up your project files to prevent data loss. If you encounter any problems or need help, do not hesitate to contact the software manufacturer or community, they will be happy to provide you with support and solutions.

Finally, thank you for choosing our slicing software, and we wish you happiness and success on your 3D printing journey!