

3D Printers

The 3D printers at MS-L (Leesburg) and MS-P (Purcellville) are lovingly maintained by a crew of not-so-magical elves. To keep this mash-up of commercial and frankensteined printers running is no small feat. Please read and follow the guidelines on this page and in this section to help us keep them running.

There is work on updating how to use the 3D printers, so please reference the [3d Printer Room Plans](#) for more information

- [3D Printers @ MS-L](#)
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To Get Help

Post a message to the [#3dprinting](#) Slack Channel.

Safety Rules

Do not leave your print unattended	Watch your print at all times. Things can go horribly wrong quickly.
Use care around heated beds and hot ends	3D printers use heat had have HOT parts
Watch your spool for jams	Jammed filament ain't no fun for nobody.
When things go horribly wrong tell someone	If we know what happened we have a better chance to fix it...or prevent it next time.
Use care around heated beds and hot ends	3D printing uses heat. Heated beds can be up to 100°C and hot ends up to 250°C. If not careful you will get burned.
Do not attempt to adjust the printers	If you don't know what you're doing you can cause more harm than good. There is a support contact for each printer, or post your issue to the #3dprinting Slack channel.
Do not change the printer's EEPROM settings	Your changes may work for you but mess it up for others.
Keep metal objects (spatulas, pliers) away from the nozzle	Metal tools can scratch or damage soft brass print nozzles and other parts.
Cancel your job immediately in case of unusual noises or smells!	Use common sense...if it sounds like ball bearings in a washing machine then it's probably not working right.
When (not if) the printer breaks...	<ul style="list-style-type: none">• Unplug it• Place a note on it• Let us know through the #3dprinting Slack channel• ...and don't sweat it. Printers break all the time.

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Beginning 3D Printing

Before using the 3D printers, please attend a 3D Printing Basics class. If none is scheduled post a note to the [#3dprinting](#) Slack channel. The slides for the class can be viewed [here](#).

Troubleshooting

3D printing can be difficult. If you experience problems there are folks who can help. First, review the guides here and for the specific printer. If you still have a problem, post to the [#3dprinting](#) Slack channel. Even if you find the solution, let us know, so that we can be aware that it might be an issue for others, and try to prevent it from happening again.

Software

Ultimaker Cura

Pros:

- Cura is the slicer of choice for many open source-based 3D printers for its relative ease of use
- It has built-in profiles for many printers

Cons:

- Cura does not support FlashForge or MakerBot printers
- Custom printer profiles cannot be exported
- Custom material profiles cannot be exported

Skill Level	Novice to Advanced
Supported Printers	PrintrBot, Monoprice, Malyan
Unsupported Printers	Flashforge, Makerbot
Support formats	input: .stl, .obj, .3mf, .gcode, .g, .x3d, output: .stl, .gcode, .3mf, .ufp, .obj
Download	https://ultimaker.com/en/products/ultimaker-cura-software

Slic3r

Slic3r is open source and can be difficult to use. For advanced users it has fine-grained control and can produce excellent prints.

Pros:

- Can produce excellent prints
- Easy to use GUI

Cons:

- Lots of knobs to twiddle
- Can be overwhelming for novice users
- Lack of pre-defined, tested profiles
- Settings controls are a bit confusing and difficult to manage

Skill Level	Intermediate to Advanced
Supported Printers	PrintrBot, Monoprice, Malyan
Unsupported Printers	Flashforge, Makerbot
Support formats	input: .stl, .obj, .amf, .3mf output: .stl, .gcode, .amf, .3mf, .obj
Download	http://slic3r.org/download

FlashForge FlashPrint

Pros:

- Very easy to use for FlashForge
- Very well-done slicing options

Cons:

- Only supports FlashForge printers

Skill Level	Novice+
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Supported Printers	FlashForge
Unsupported Printers	All others
Support formats	
Download	http://www.flashforge.com/support-center/flashprint-support/

MakerBot Print

Pros:

- Very easy to use interface

Cons:

- Only supports MakerBot and FlashForge

Skill Level	Novice+
Supported Printers	MakerBot, FlashForge
Unsupported Printers	
Support formats	
Download	https://www.makerbot.com/3d-printers/makerbot-print/download/

MatterControl

MatterControl is the most flexible of the software listed here. It's open source and easily extensible via custom printer profiles.

"MatterControl is a free, open-source, all-in-one software package that lets you design, slice, organize, and manage your 3D prints. With MatterControl, you can design your parts from scratch using the Design Tools, or visit the Design Apps to browse existing projects. You can also slice your designs using a variety of advanced settings for customized support generation, software bed leveling, and integrated controls for dual extrusion using powerful 64-bit processing. When you have all the variables managed, you can print straight from MatterControl - no need for multiple programs - MatterControl does it all."

Pros:

- Very easy to use
- Broad set of profiles for printers and materials
- Extensible printer profiles with inheritance
- Supports every printer we have (except Rostock maybe - to be tested)

Cons:

- UI can be a little confusing at first
- Canned profiles may need tweaking

Skill Level	Novice+
Supported Printers	PrintrBot, Monoprice, Malyan, FlashForge, MakerBot
Unsupported Printers	Customizable
Support formats	input: .stl, .amf, .zip, .gcode output: native printer format for supported printers
Download	https://www.matterhackers.com/store/l/mattercontrol/sk/MKZGTDW6