Prusa Printer Usage Notes

Some general notes and tips about using the Prusa printers.

Filaments

Things to remember about printer filaments:

- Prusa printers use 1.75mm diameter filament.

- It should be kept tightly wound on the spool.

- It should be stored in a dry location.

Main Filament Types

- PLA - easy to print, hard, lower-temperature, corn-starch based

- PETG - good for mechanical parts, less brittle, can be a little stringy

- TPU - flexible, sticks too well to beds so **use glue stick**

Secondary Filament Types

- Phosphorescent - abrasive on brass nozzle, use on hardened-nozzle printer

- ABS/ASA - strong, higher temperature, but needs ventilation and slower cooling

- Wood-filled: use only Hatchbox brand on 0.4mm nozzles, prefer hardened-nozzle.

- Carbon Fiber-filled: very abrasive on nozzle, use on hardened-nozzle printer.

- Nylon: use satin sheet beds at this time with glue interface

Further Information

For further info, consult Prusa Materials Guides

Some brands we've liked:

- Hatchbox, eSun, Prusa, tty3D, 3DSoluTech, Polymaker, Matterhackers, Protopasta, AmazonBasics (sometimes)

Current Printer Logistics

- Come in during Open Studio time

- Select an available printer

- Remove and stow any completed job on that printer
  - Printed object, filament, and SD Card

- Job submission is by SD-Card - BYO or use ours
  - TBD: or via OctoPrint if installed on the available printer.

- Stay around for 1st layer adhesion
  - Or convince someone to watch it for you

- Leave a card with your name and contact info

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Caveats

- Start with a clean prepared bed for your material

- Do not arbitrarily swap the steel sheet with another printer
  - each printer has a named profile for the sheets its calibrated for

  - any change means switching to a different profile too

- Do not adjust Z-height settings w/o recording it in the log
  - But really ask why you need to do this in the first place?

  - (see Troubleshooting tips below)

Printer Bed Sheets

Care and maintenance of print bed sheets

Bed Sheet Usage Tips

- Smooth – good for PLA, usually too sticky for PETG
  - use Windex to clean it, or use glue stick interface layer
- Textured – good for PETG, okay for PLA (but more sensitive)
- Satin – good for all (use glue stick with PC or PA)
- All – for TPU use glue stick for ease of removal

Cleaning Tips

- Avoid fingerprints and other greases
- Clean sheet while cool
  - Isopropyl alcohol if printing with PLA
  - Windex™ if printing with PETG
    - Especially on smooth sheets!
  - Can use dish soap and water but must immediately dry
    - Sparingly on textured sheets
- never use acetone on non-smooth sheets
  - and even then only sparingly

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Troubleshooting

- If a job fails – change something before trying it again.
  - Most commonly it's first layer adhesion.
  - Try cleaning the sheet first
  - Check first layer thickness, is it at least 0.2mm?
  - Temperature, filament, speed, or supports can also contribute.
    - reduce speed for 1st layer to 85%
    - increase bed temperature by 5°C
    - is it old filament?
    - is the filament coming off the spool correctly?

Checklists

Things to remember when using the printers

Removing a print job

- remove printed parts carefully when bed has cooled, set aside.

- preheat for the type of filament currently loaded, and unload it when hot.

- thread end of filament through holes in spool to keep it wound

- place part, filament, and user's card (if any) on the shelf by the window

Starting a print job

- ensure printer sheet is clean, and ready for printing

- visually inspect printer: is the hot end clear, any other issues?

- preheat for selected filament, load into extruder when it's ready

- keep letting it extrude more until your filament is extruding cleanly

- load part to be printed via SD-Card, USB stick, or OctoPrint (depending on printer)

- select part and start it printing

- observe and wait for print to start, be prepared to catch stray threads at start

- do not leave until the first layer has been successfully printed