

## HowTo use our 3D Printer

3D Printer Status: **WORKING (see Issues)** if you have troubles please write a request (following the report [guideline](#)) to [simon.haller@uibk.ac.at](mailto:simon.haller@uibk.ac.at).

At the moment (05/2016) use only the right extruder.

### Handling

HANDLE THE PRINTER WITH CARE!

For example:

Do not use metal tools to remove printed objects.  
Do not touch the the built plate with your fingers.

Both will damage the Kapton Band.

### Material

At the moment only use ABS (green, red, white, blue, orange).

Do not use PLA (black) or Ninja Flexible Material ... for those materials we have to wait for a firmware upgrade (14.07.2014).

### Known Issues

| Date       | Description  | Solution  |
|------------|--|---|
| 02.04.2016 | Use external Power Supply to speed fans.           |   |
| 10.08.2015 | again broken fans - ordered replacement            |   |
| 16.02.2015 | Makerware crashes (segfault)                       | <a href="http://www.ichdruck3d.de/makerware-stuerzt-unter-linux-ab-solved/">http://www.ichdruck3d.de/makerware-stuerzt-unter-linux-ab-solved/</a> |
| 08.12.2014 | Use the left extruder (the right one is unplugged) |   |

### Solved Issues

| Date       | Description        | Solution                     |
|------------|--------------------|------------------------------|
| 31.08.2015 | Broken Capton Band | Changed Capton Band          |
| 10.08.2015 | Broken Temp Sensor | Replaced temp sensor         |
| 29.07.2015 | Broken Capton Band | Changed Capton Band          |
| 03.05.2015 | Broken Capton Band | Changed Capton Band          |
| 01.12.2014 | Broken Gear        | Fixed with a new gear holder |

| Date       | Description                                     | Solution  |
|------------|---|---|
| 21.10.2014 | Broken Capton Band                              | Changed Capton Band   |
| 17.09.2014 | Broken Capton Band                              | Changed Capton Band   |
| 08.08.2014 | Rigth extruder not working ("Heating Failure"). | Reattached thermocable at extruder. Seems to be very fragile...             |
| 08.08.2014 | Kapton Band had holes                           | Replaced it   |
| 23.07.2014 | Still jumpy X Axis                              | Got Cables from Support (hafners-buero.com), Replaced them.                 |
| 16.07.2014 | Still jumpy X Axis                              | Requested new Cables from Support   |
| 15.07.2014 | Joggy Movement of motors                        | Strengthened X Axis belt. Resoldered X Axis Connectors                      |
| 15.07.2014 | SD Card Slot does not hold Card                 | Fixed Slot (push sd card softly in - do not use any tape around an SD Card) |
| 14.07.2014 | Broken Fan                                      | Replaced Fan  |
| 14.07.2014 | Jumpy Stepper Motors                            | Used WD40 as lubrication  |
| 05.06.2014 | Greasy Kapton Band                              | Replaced Band   |

## Updates

| Date       | Description            |
|------------|------------------------|
| 08.08.2015 | Firmware update to 7.6 |
| 14.07.2014 | Firmware update to 7.5 |

## Creating a 3D Object

Choose a CAD or 3D Software which can handle stl files (examples: MeshLab, Blender, Bricscad, QCad, FreeCAD, VariCad, Open CASCADE, Cycas CityEngine, BRL-Cad, Draftsight, LibreCAD, ...)

Create your 3D model and save it as STL file.

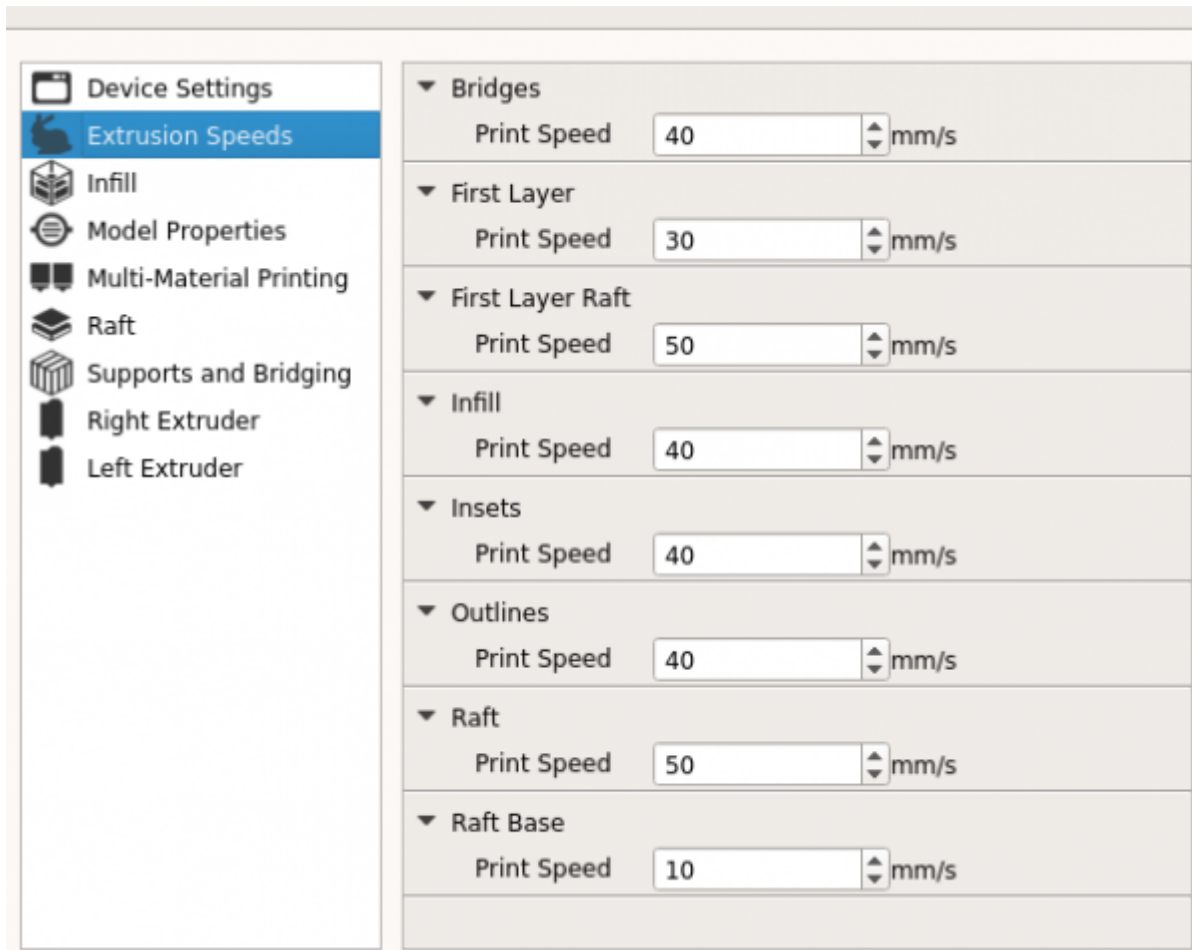
You can also have a look at the makerbot thingiverse library - where you can find free (gpl licensed) 3D models ready for printing: <http://www.thingiverse.com/>

If you want to share your CAD models with the group (or if it is more often used) add your STL file(s) to following repository:

```
ssh://iis.uibk.ac.at/projects/git/CAD-models
```

## Makerware and 3D Print Files

Use the following speed settings:



To create 3D print files you have to use the original Replicator 2x software: makerware (Download: [Makerware](#))

1. start Makerware
2. **SELECT CORRECT 3D Printer**
3. MakerBots → Type of Makerbot → The Replicator 2x

Import your STL file in Makerware and use the following settings as default for print-file export (object without quotes refers to the imported stl file; "Object" refers to the menu point):

1. move object to platform (select object → select "Move" → "On Platform" )
2. place object a bit to the front
3. select object → "Object" → select Extruder "right"
4. select "Make"
5. Export for "The Replicator 2X"
6. Select Right: "Makerbot ABS"
7. Resolution: Standard
8. Raft: "Right Extruder"\*
9. Supports (only if you have overhanging parts in you object): "Right Extruder" or "Color matched"\*
10. Quality
  1. Infill: between 10% - 40% depending on how stable your object should be
  2. Number of Shells: 2
  3. Layer Height: 0.15mm
11. Temperatur:
  1. Extruders: 233

2. select "Heat Build Plate"
  3. Build Plate: 114
12. Speed:
1. Speed while extruding: 40mm/s
  2. Speed while traveling: 70mm/s

Save the x3g file on a FAT formatted SD-Card. The SD card used with your MakerBot Replicator x2 must be formatted FAT16 with a maximum capacity of 2GB. Put the SD-Card into the printer and select your file to print.

If (and only if) you want to dig REALLY DEEP and have full control, consider defining your own slicer options as documented here: <http://www.makerbot.com/support/makerware/documentation/slicer/> BE AWARE that already the default options differ a lot from what you are used to. So take your time and adjust every single setting to your needs.

\* When printing large objects, Makerware may decide to use the two extruders although only one was chosen, this to let the material/extruder cool down. You can check this by looking at the preview, in the right top corner the material use will be displayed, if both extruders are used "right material use" AND "left material use" will appear and the object will be shown in two different colors. If you do not want Makerware to do so, choose "color matched" instead of "left extruder".

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