

MMU models slicing with PrusaSlicer and Prusa MMU2S

This article go step by step in proces of slicing Multi Material 3D model with PrusaSlicer with focus on appropriate extruder assignment, objects placement and check for correct layer placement.

First tips for MMU prints

After some time of using multimaterial upgrade MMU2S for Prusa i3 MK3S printer i can offer this example workflow for seamless MMU prints.

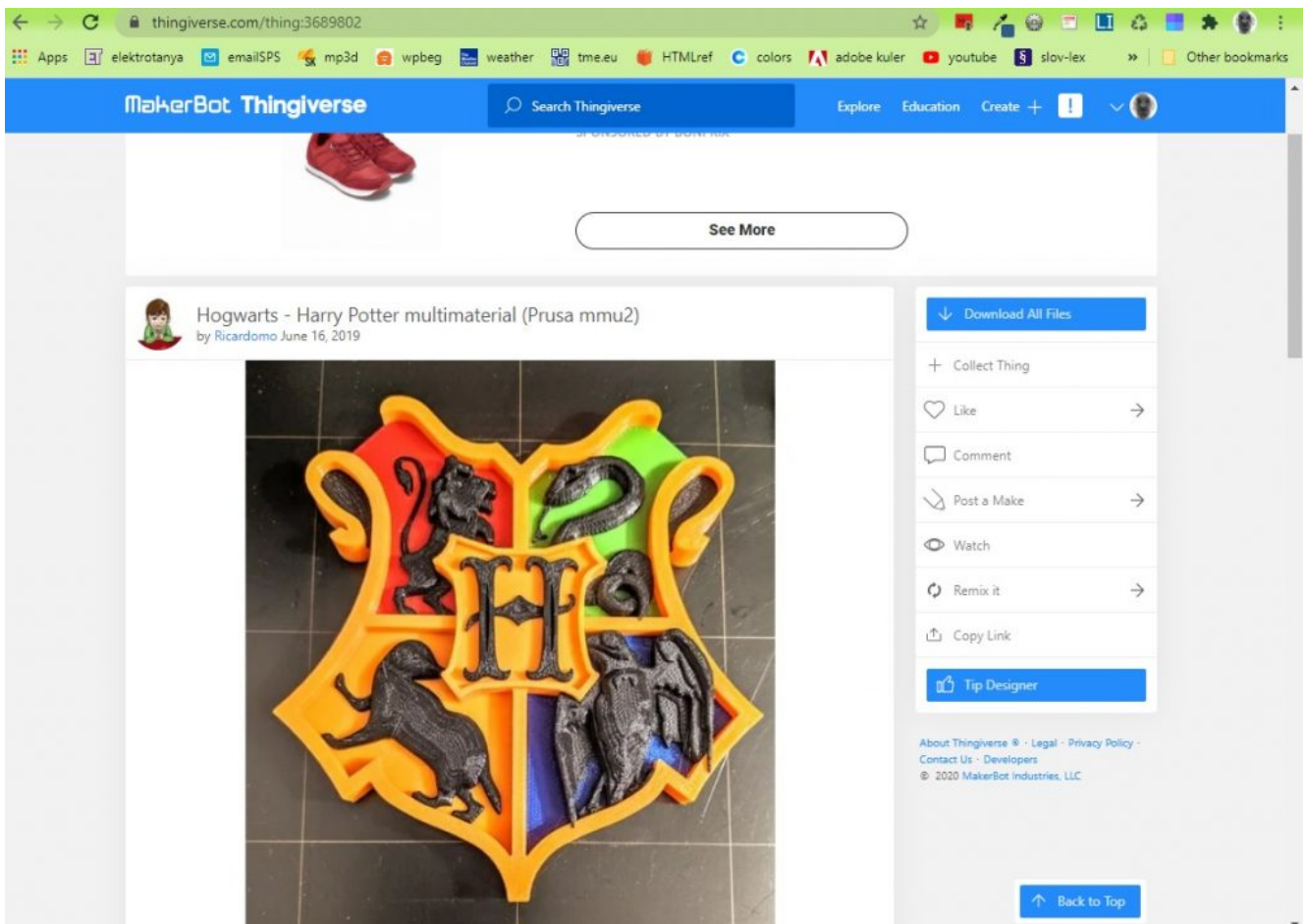
Best MMU material for MMU print for me is PETG. Filament is tough and mechanical resistant, gears does not damage it during permanent loading and unloading proces. Number of outer intervence is minimal. Something worse ist ABS but because it thermal sensitivity is appropriate for almost 2D prints (bookmarks, logos, ...). Worst material is PLA, is beter dont use it because it low melting point and bad mechanical resistance (gears can easy damage it).

At the begining we can prepare our own model (this for interesting bookmarks or another logos can describe in another article) or download one from web.

Very important is, that full model must be divided in separate parts of appropriate colors that lays on on top of another or on one basement object. Very important is that they dont interfere one by another. And they must lay in way that one objects layer is on the top of another layer. There can not be any one free layer, because all final print will be demaged.

Selection of exercise model

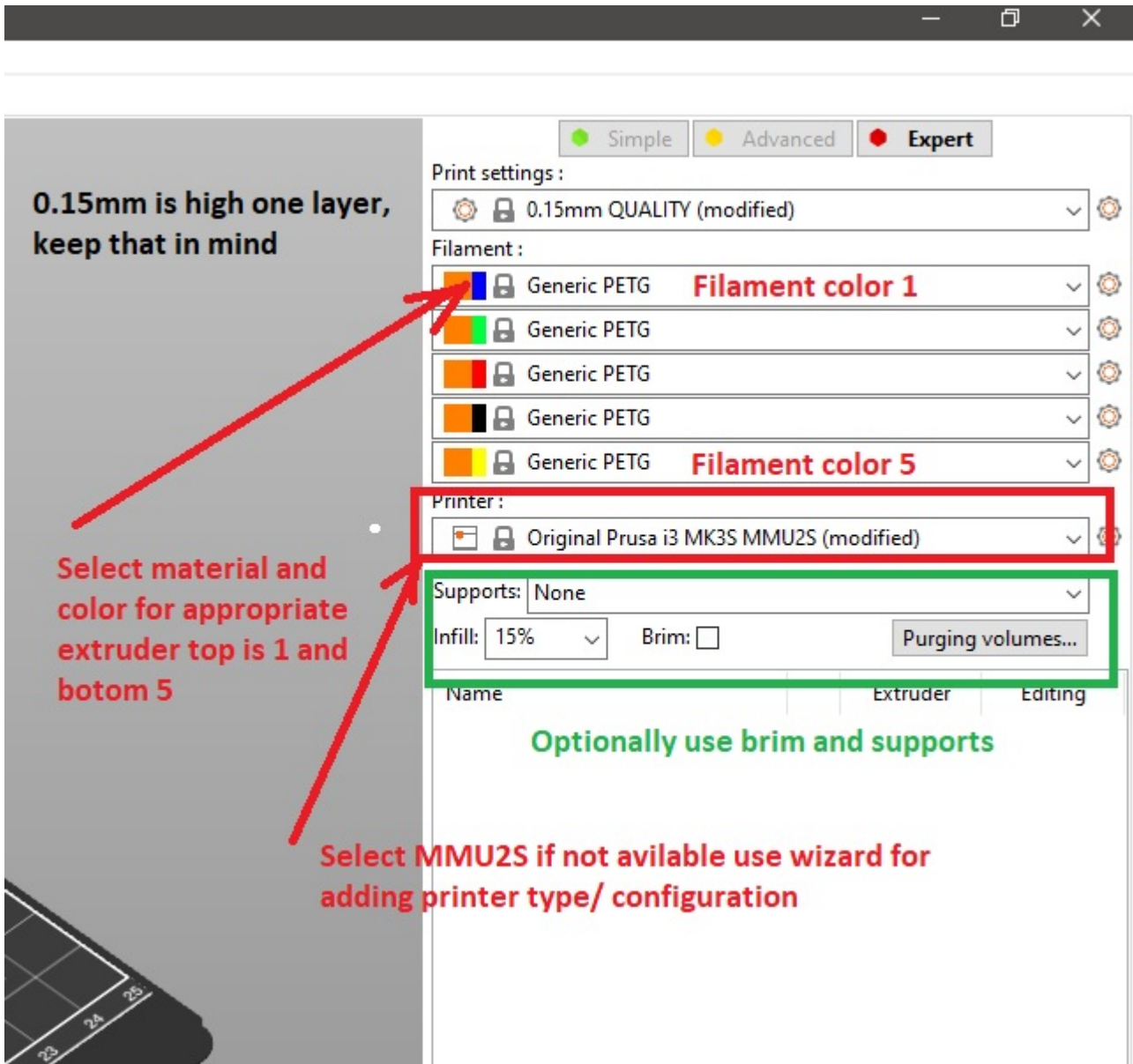
For our exercise we download model <https://www.thingiverse.com/thing:3689802> from thingiverse. If you are interested for other models, please visit selection <https://www.thingiverse.com/ciljak/collections/mmu>.



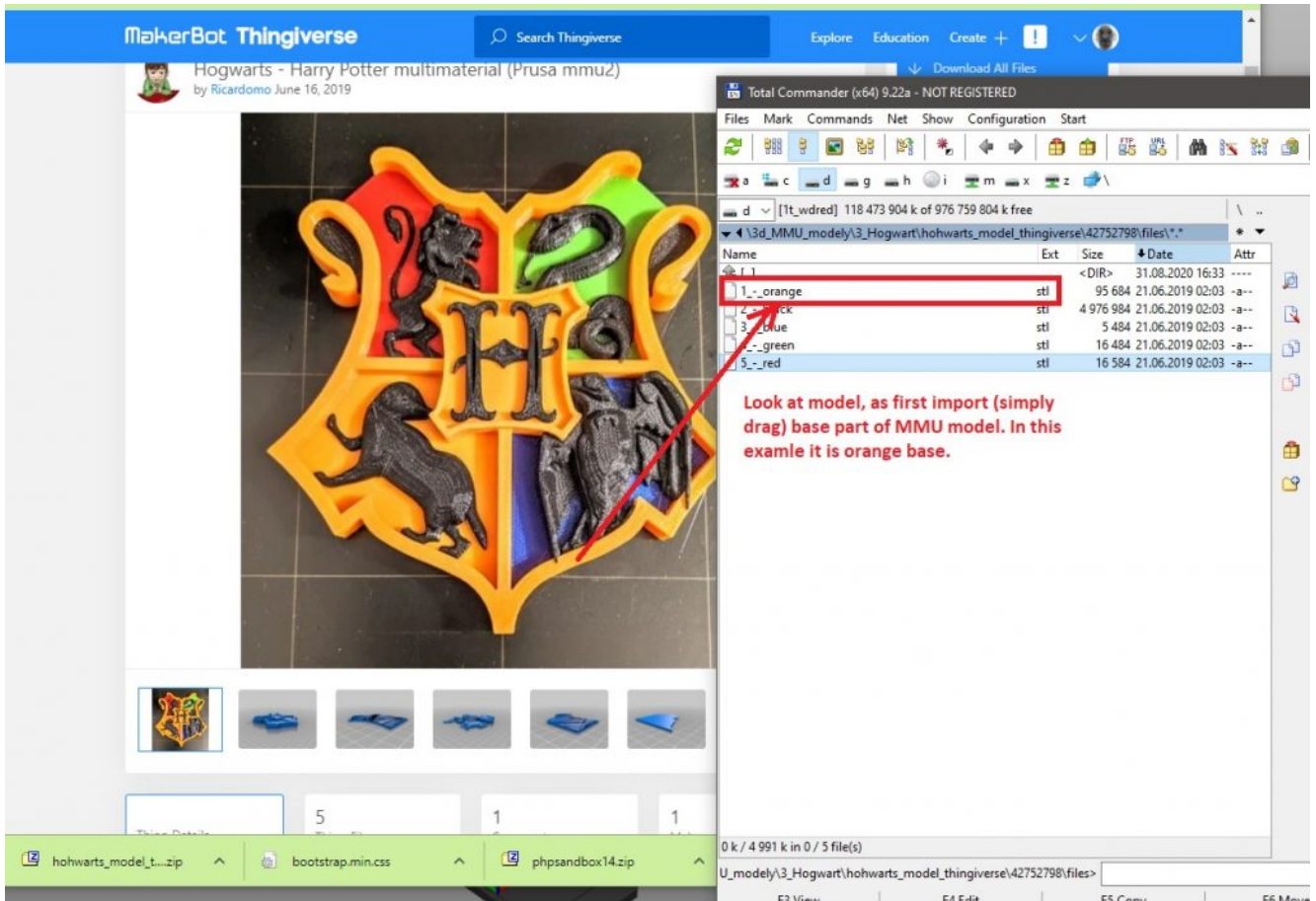
After download unpack .zip file and run PrusaSlicer (this description use version 2.2).

For basic setup must be done:

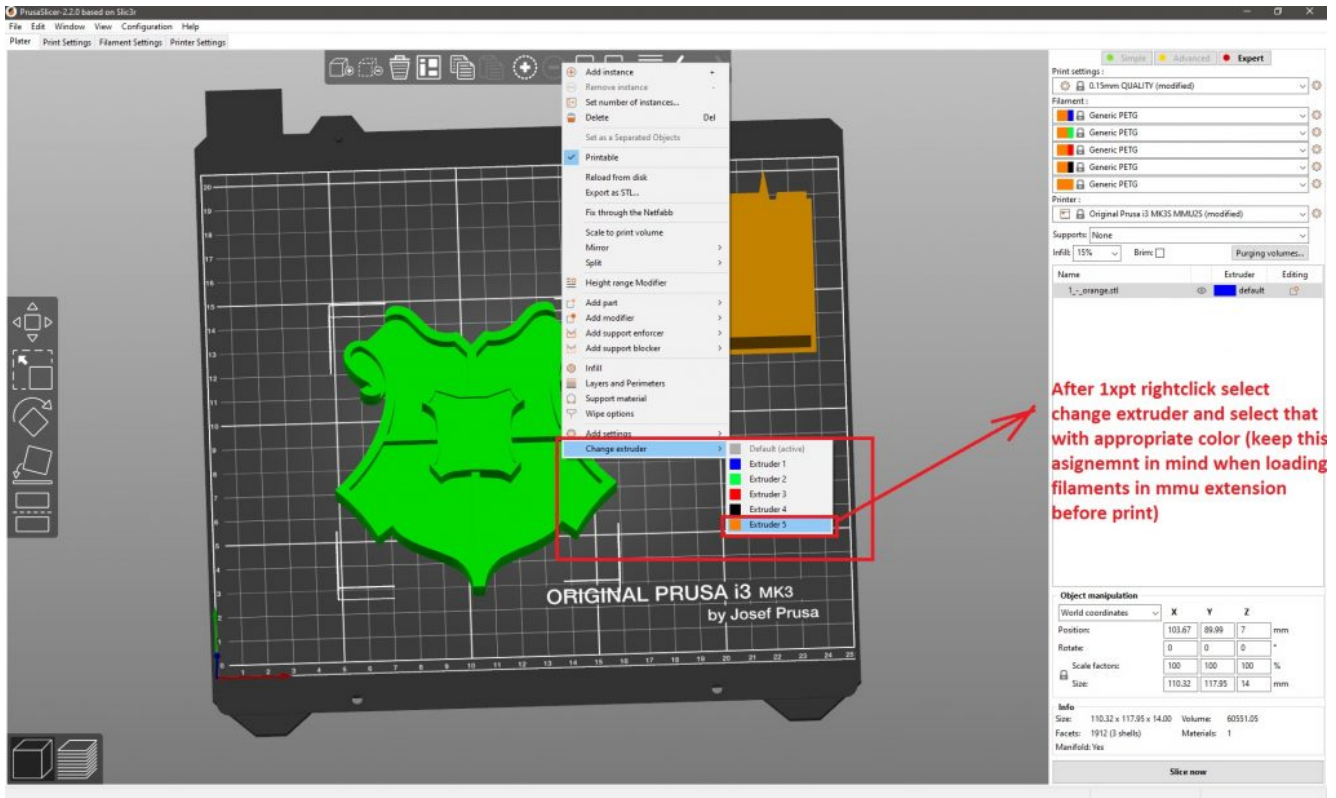
- **Selected quality** – for good results select 0.15mm QUALITY
- In section Printer **select Original Prusa i3 MK3S MMU2S** – if not awayable, please go through printer add wizard and instal printer with MMU upgrade (now we have option for MMU single or MMU as we selected on our next picture)
- For all filaments select **appropriate type and color of filament** for visualisation (keep in mind that on the top is filament 1 and bottom filament 5, in this order with correct color they must be loaded into MMU2S upgrade on the printer)
- **Optionaly** select **supports or brim** for better setting of the model



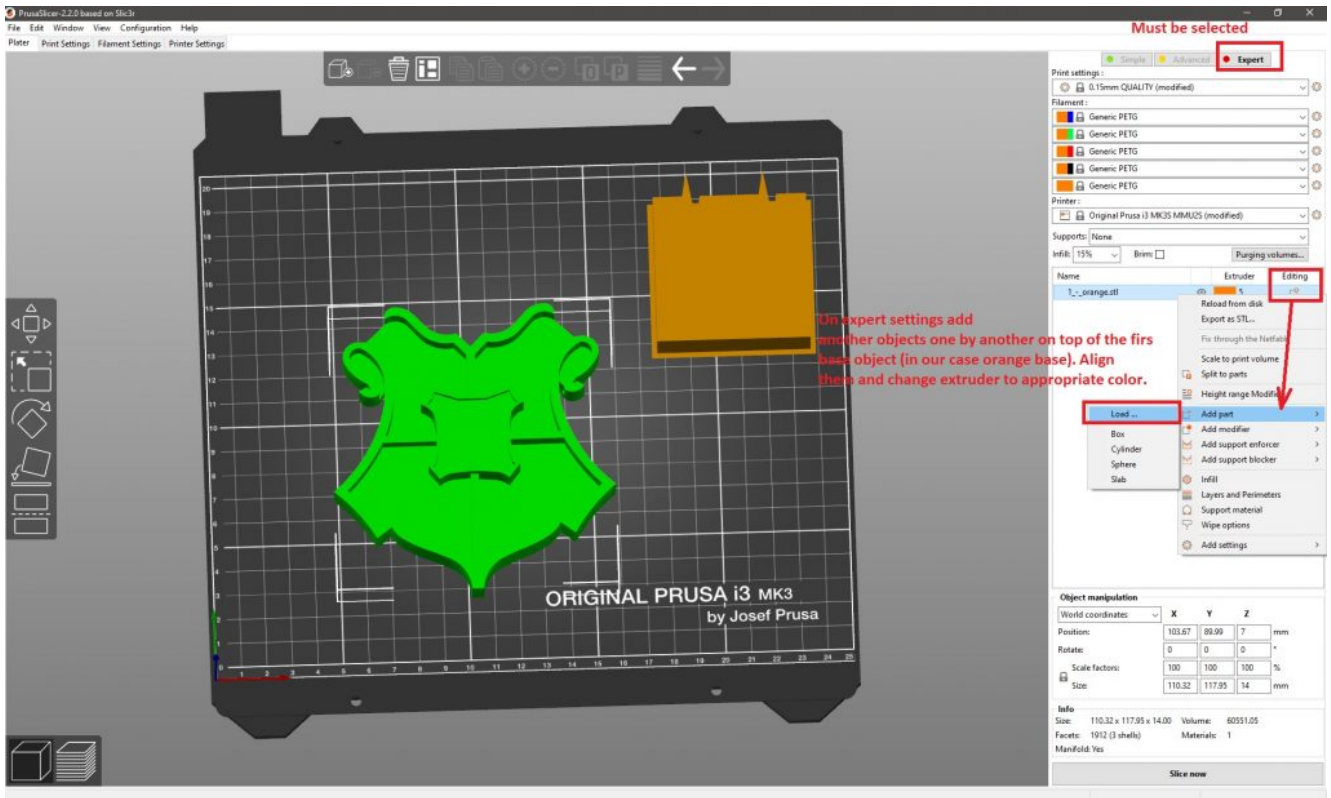
Before next step, we must look at our model and recognize what part is base on top of their are other parts added. In our exmple it is orange part. This part can be drag and drop into space of slicer. Other parts are added on the top and the create final MMU composit.



After import of first (base) orange part, we must rightclick on the object and select extruder with appropriate filament, in our case it is extruder 5 with orange filament.

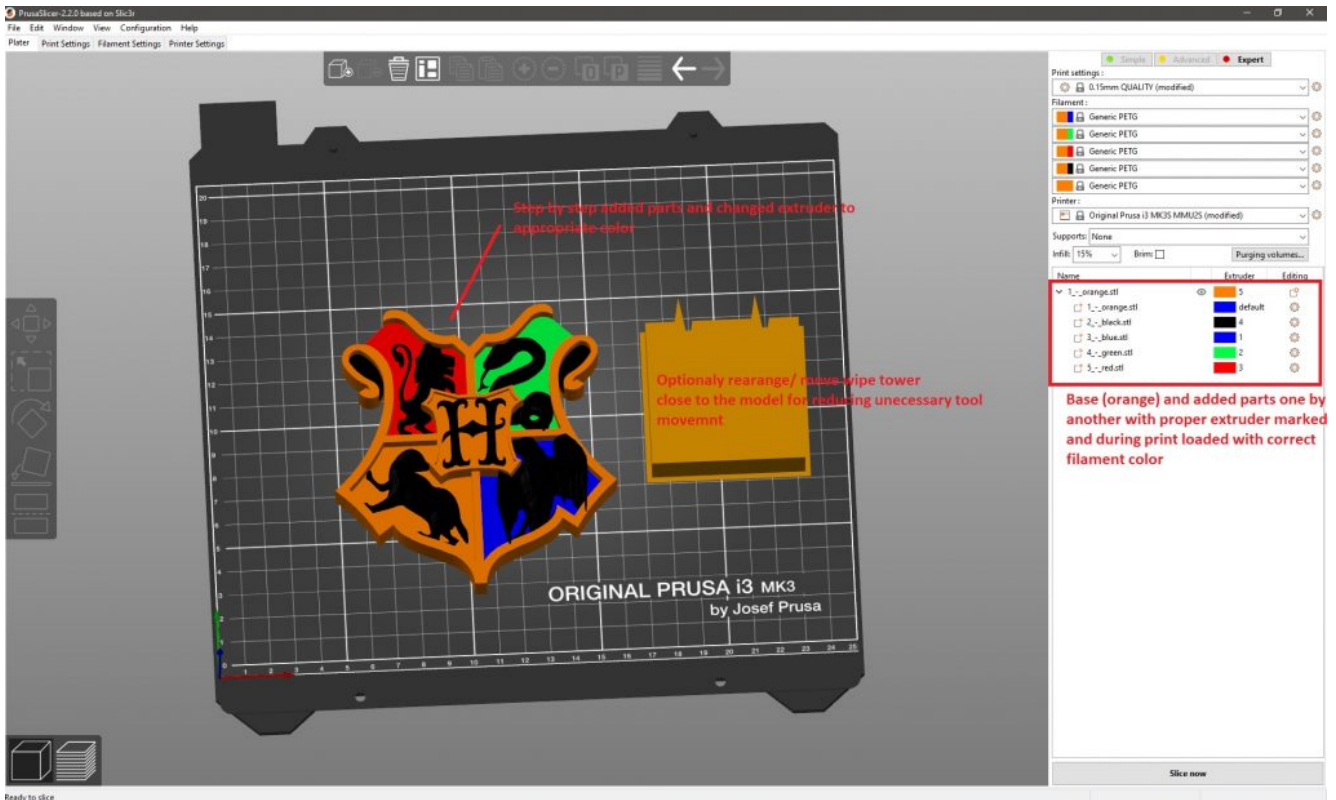


In next step we must switch on expert settings and on object pane (right bottom layered part) we click on add option (with sign + in circle). Next select add part and load one of remaining parts from disk. Our downloaded files are named by color in spanish, but it can be recognized or translated and refered with picture of modell on thingiverse.



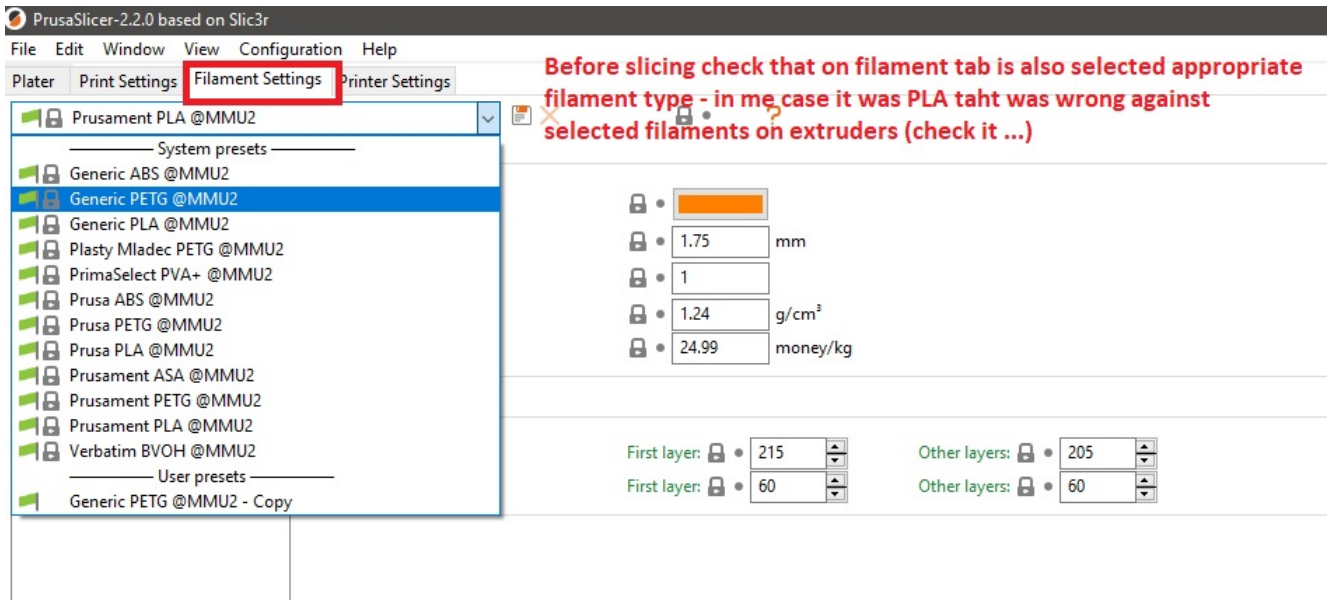
After adding first part, use rightclick on selected part and change extruder to appropriate color. Repeat his steps – add, change extruder to appropriate color until last part of model.

Optionaly you can change position of wipe tower. You can also rotate and change width of tower for better workflow of objects on headbed.



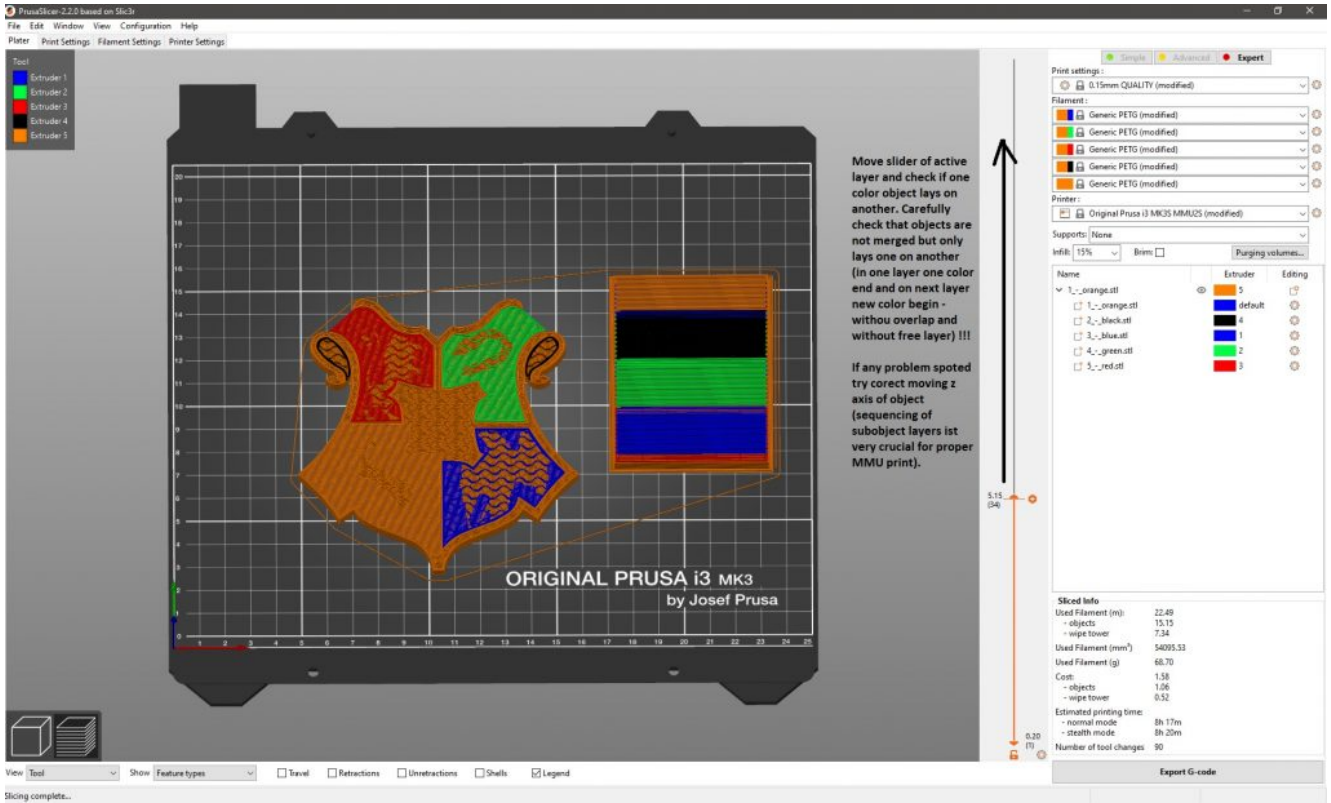
Tips and tricks

Important notice: Before final slicing, look at tab **Filament settings** and **check if correct type of filament** is selected. After initial opening of PrusaSlicer default settings was for PLA. We changed filaments for appropriate extruders but this selection does not automatically change the type of filaments. You must do it manually, it was one of my big mistakes with the new MMU upgrade.

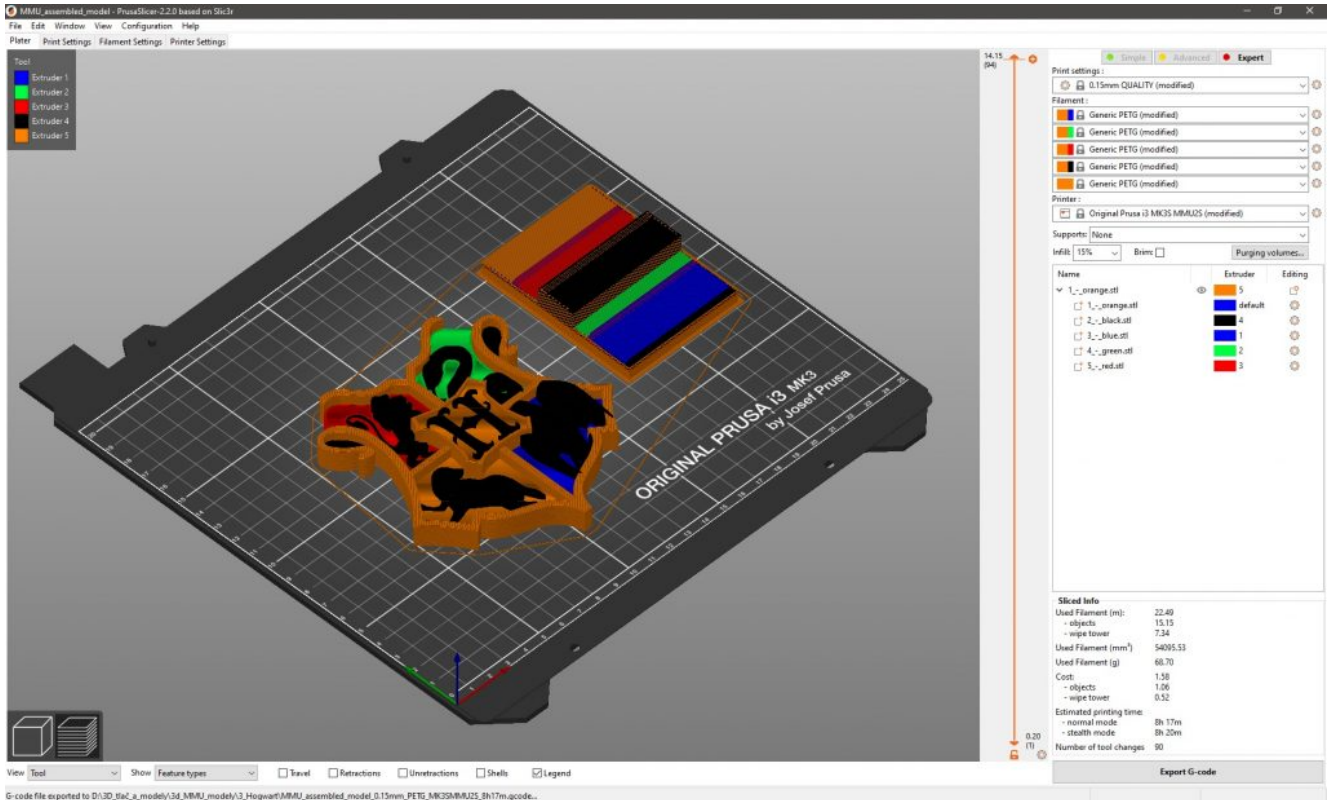


Important things to check after slicing: Slide with layer selector and check all color layer changes. On one layer can not be two or more materials with different colors in same place. Also one layer by another there can not be a free layer.

If you work on simple objects as bookmark or another promotional item it can be calculated that 4 layers with width of 0.15mm are together high 0.6mm. Next added object (logo or text) must have their z axis on 0.6mm. And if this text or logo will have 3 layers it must have 0.45mm high because $0.45/0.15$ is number 3.



Next picture show fully prepared MMU objects.



Prepared PrusaSlicer file can be downloaded for further study from here.

Tip for you: MMU can produce large waste of material when is used for large 3D objects but it can be economical if you use it for some marketing things as bookmarks and logos of a company. Think about it before preparing model. Very good scenario is singlecolor base and next logos and text with only few layer.