



Slicing Guide for Mixing Color printer

(Base on Cura 4.10 or later)

V2.0

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- [Slicing more colors 3d object by using virtual extruder](#)(used colors $>$ actual extruders of printer, now it is up to 8 colors for cura)

Download and install Cura

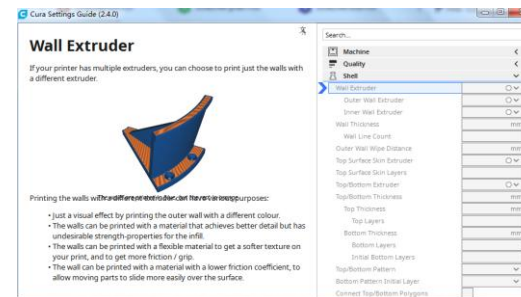
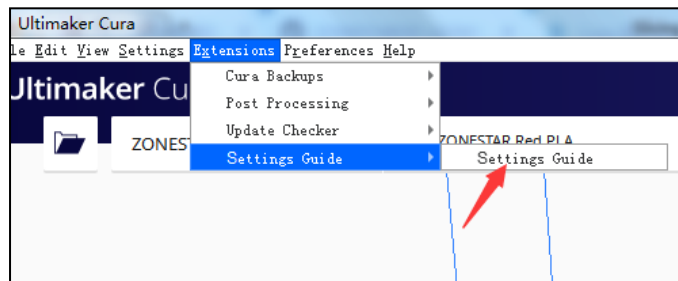
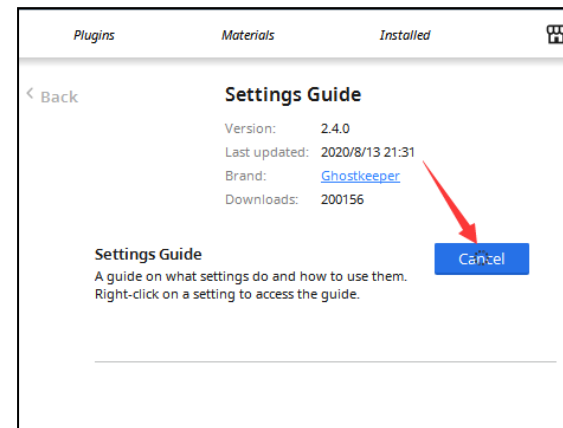
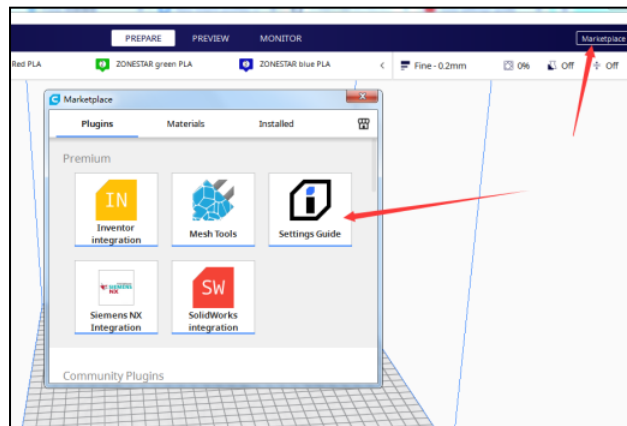
Download cura from the below link and install it to your PC:

<https://ultimaker.com/software/ultimaker-cura>

About how to install and use Cura, please refer to this link:

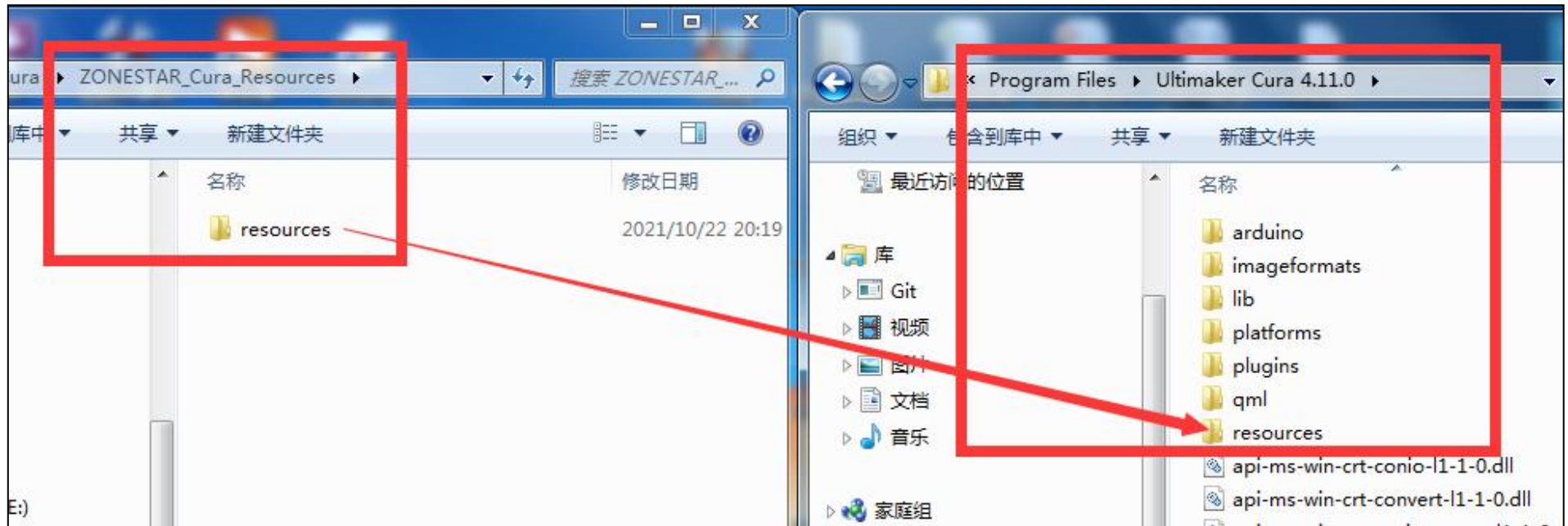
<https://support.ultimaker.com/hc/en-us/categories/360002327600>

If you want to know more about the settings of cura, please install a “settings guide” plugin in cura, and then open it to study:



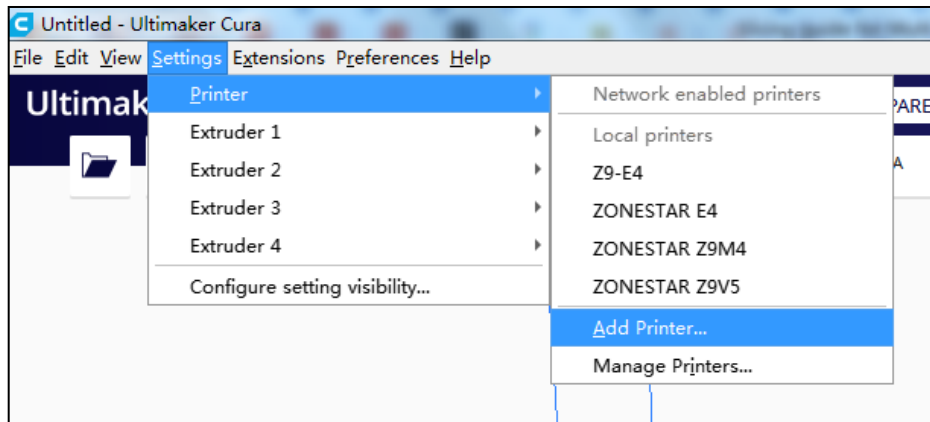
Import ZONESTAR printer settings

Copy “ZONESTAR_Cura_Resources\resources” to “resources” directory in the installation directory of Cura

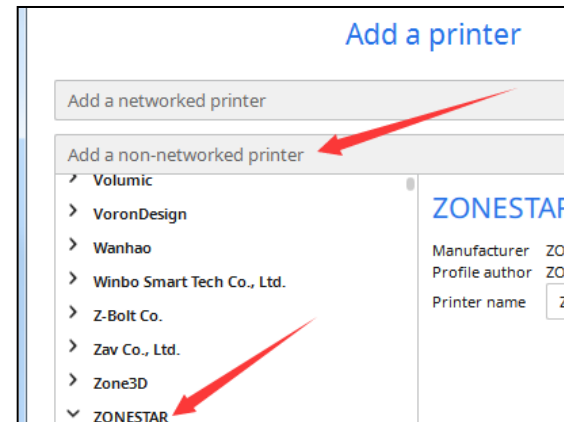


Setting up printer

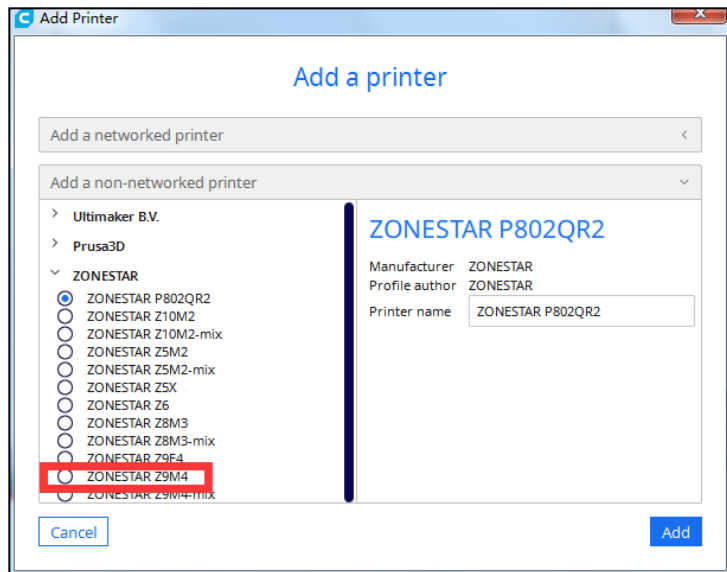
1: Open “Settings>>Add printer...”



2: Choose “ZONESTAR”



3: Choose the printer model and click “Add”



Note: choose **Z9M4** at first.

Z9M4 set 4 extruders in the define of printer.

Z9M4-mix set 8 virtual extruders in the define of printer.

Setting up printer

Click “Machine settings”, and check the printer parameters.

Printer model

Print size

Start G-code

The screenshot shows the 'Machine Settings' window for a ZONESTAR Z9M4 printer. The window has a title bar with a close button. Below the title bar, there are tabs for 'Printer', 'Extruder 1', 'Extruder 2', 'Extruder 3', and 'Extruder 4'. The 'Printer' tab is selected. The settings are organized into several sections: 'Printer Settings', 'Printhead Settings', 'Start G-code', and 'End G-code'. Red boxes and lines highlight specific fields and sections, with labels pointing to them from the left and right sides of the image.

Printer	Extruder 1	Extruder 2	Extruder 3	Extruder 4
Printer Settings				
X (Width)	310.0 mm			
Y (Depth)	310.0 mm			
Z (Height)	400.0 mm			
Build plate shape	Rectangular			
Origin at center	<input type="checkbox"/>			
Heated bed	<input checked="" type="checkbox"/>			
Heated build volume	<input type="checkbox"/>			
G-code flavor	Marlin			
Start G-code				
G28 G1 Z15 F300 M107 ;Prime the extruder G92 E0 G1 F200 E3				
Printhead Settings				
X min	-20 mm			
Y min	-10 mm			
X max	10 mm			
Y max	10 mm			
Gantry Height	400.0 mm			
Number of Extruders	4			
Apply Extruder offsets to GCode	<input checked="" type="checkbox"/>			
End G-code				
G91 G1 E-1 G28 XY M104 S0 G90 G92 E0				

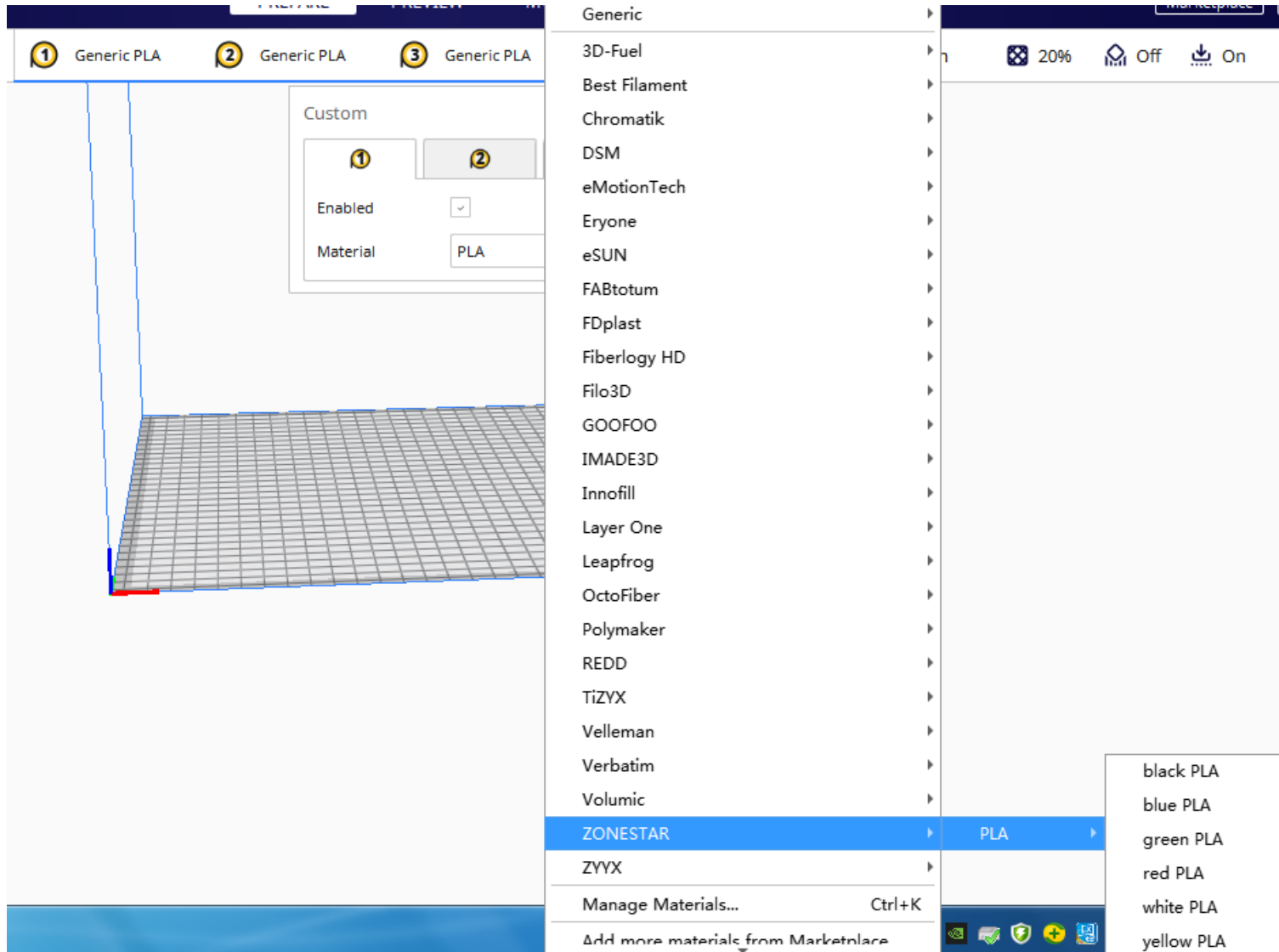
Extruder name

Number of extruders

End G-code

Setting up filament

In order to easy to view when slicing, you can define the filament color



Slicing

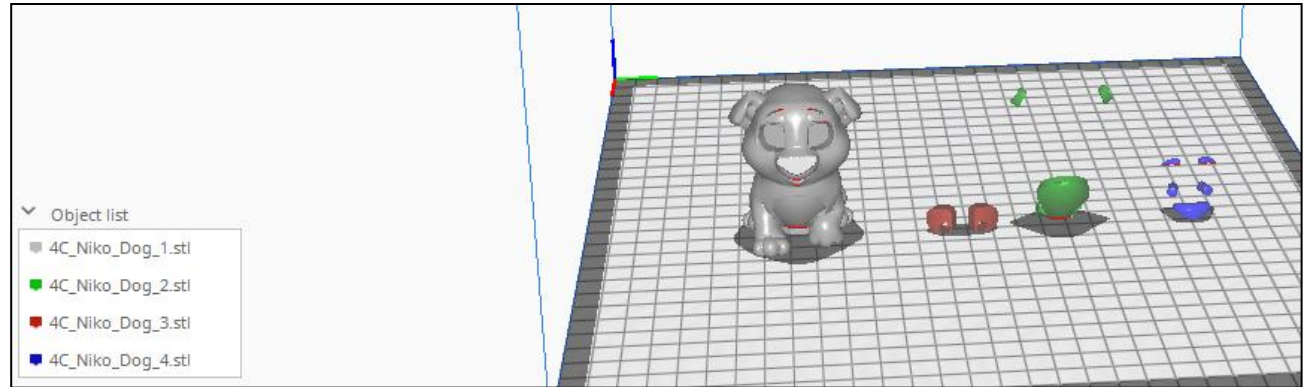
For the sake of illustration, we will use only one 3d object in the following pages. This 3d object is a 4-color model, which has divided the object into four parts

 4C_Niko_Dog_1.stl

 4C_Niko_Dog_2.stl

 4C_Niko_Dog_3.stl

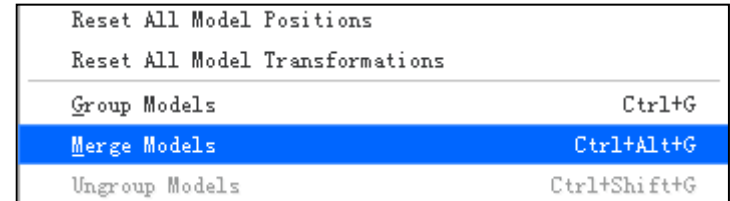
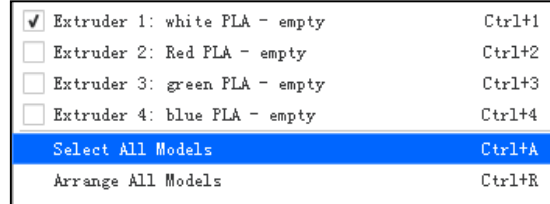
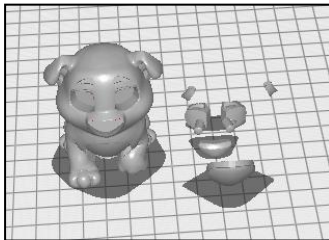
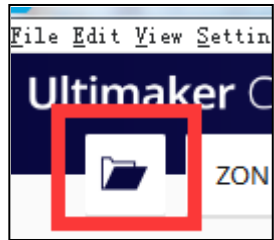
 4C_Niko_Dog_4.stl



Tips: If you need to print multi colors, you need a 3d object that has been divided (the number of divided parts is according to the number of colors), and their origin position must be consistent in order to be merged.

Of course, you can also merge several objects into one color (multiple parts are assigned to the same extruder), as you will see in the next pages

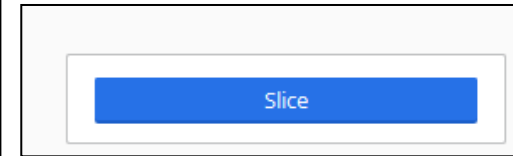
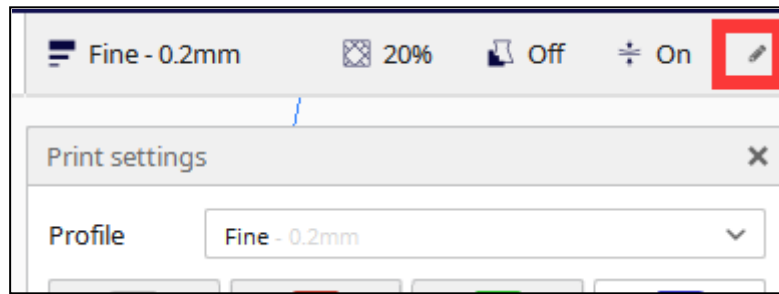
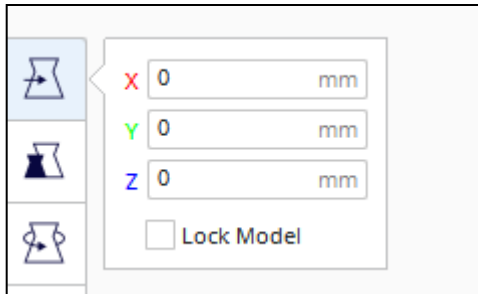
Slicing for one color 3d object printing



Load files

Right click the mouse
Select all models

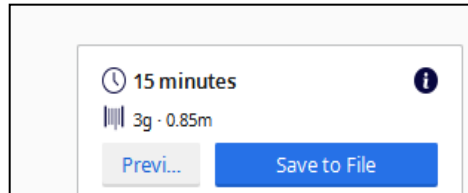
Merge



Move/Scale/Rotate
the model

Set slicing parameters

Slicing it

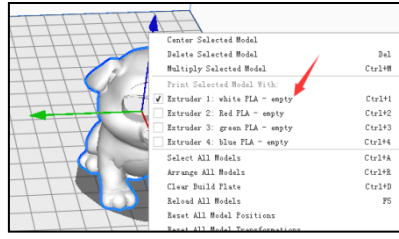
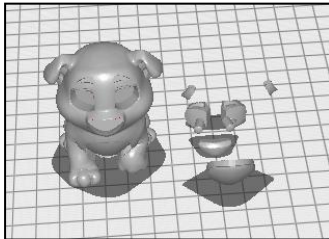
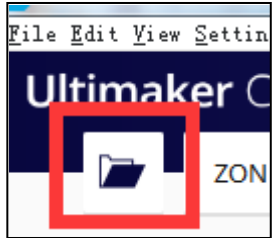


save it

Copy the gcode file to SD card
and print it

Copy the gcode file to SD card
and print it

Slicing 2 Color 3d object

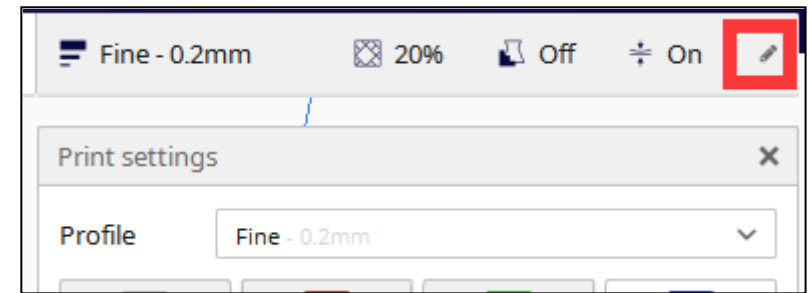
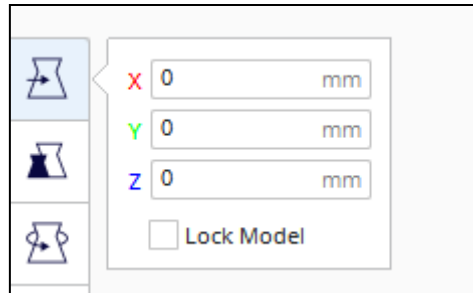
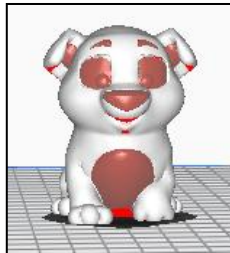
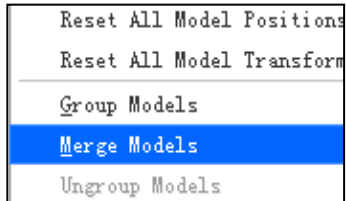


<input checked="" type="checkbox"/>	Extruder 1: white PLA - empty	Ctrl+1
<input type="checkbox"/>	Extruder 2: Red PLA - empty	Ctrl+2
<input type="checkbox"/>	Extruder 3: green PLA - empty	Ctrl+3
<input type="checkbox"/>	Extruder 4: blue PLA - empty	Ctrl+4
<input checked="" type="checkbox"/>	Select All Models	Ctrl+A
<input type="checkbox"/>	Arrange All Models	Ctrl+R

Load files

Right click the part and
assign extruder for it

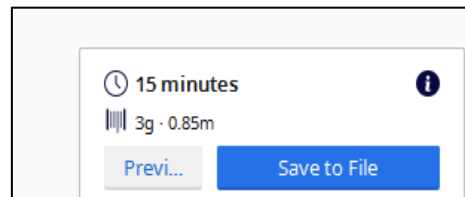
Right click the mouse
Setlect all models



Merge

Move/Scale/Rotate
the model

Set slicing parameter



Slicing it

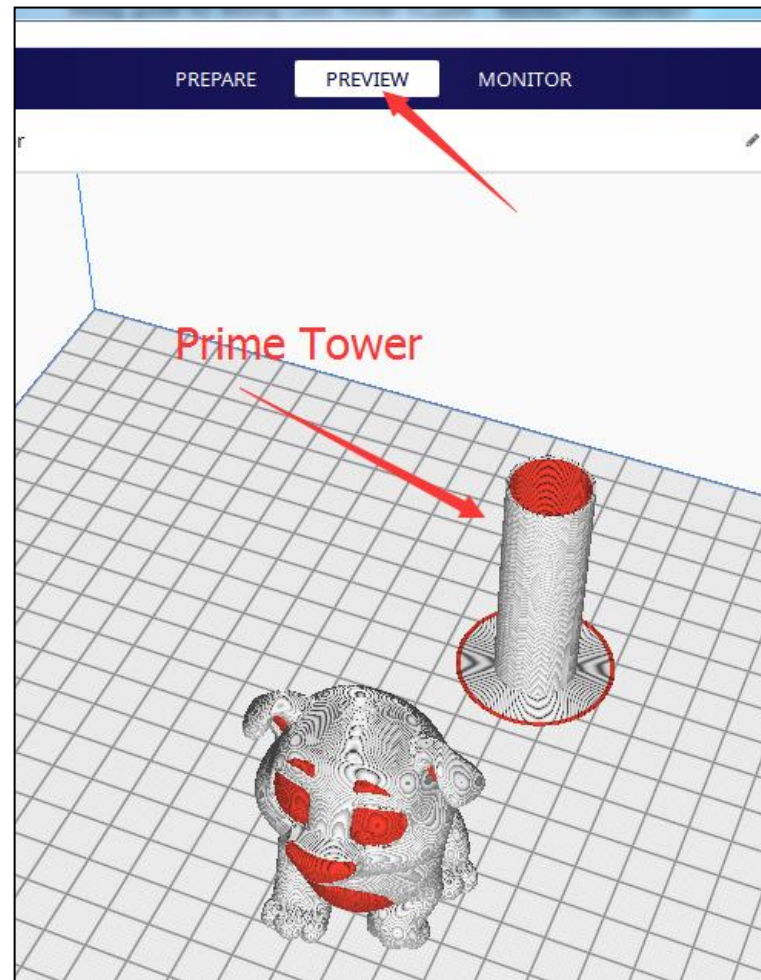
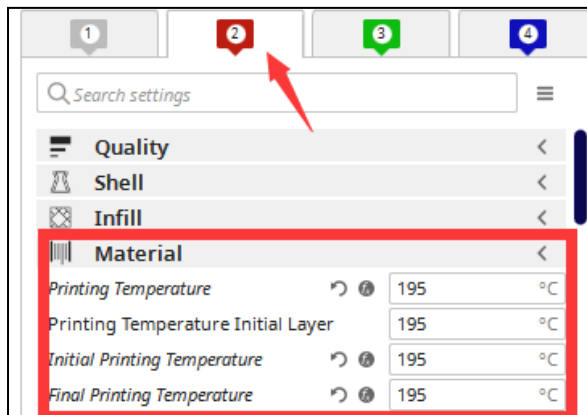
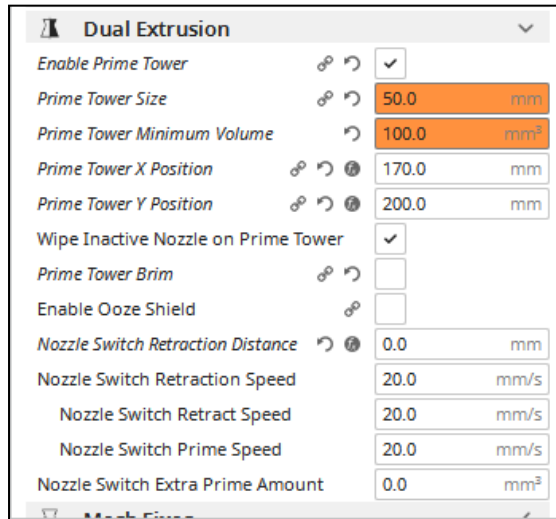
save it

Copy the gcode file to SD
card, then print it

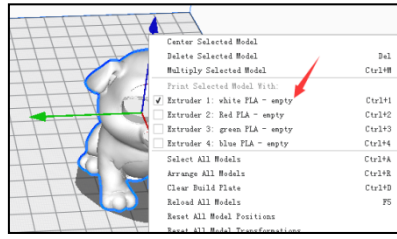
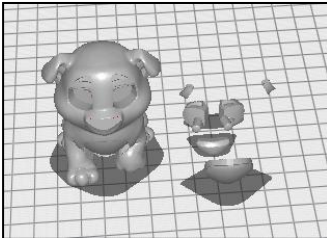
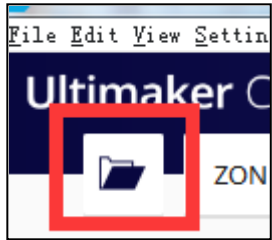
Slicing setting for 2 color printing

We need to set the below settings for 2 color printing:

1. Enable a prime tower and set its position
2. Set the filament temperature for the 2nd extruder (set to the same with 1st extruder)



Slicing multi colors 3d object - Process

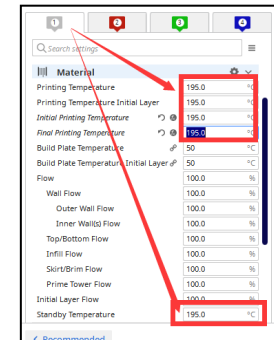
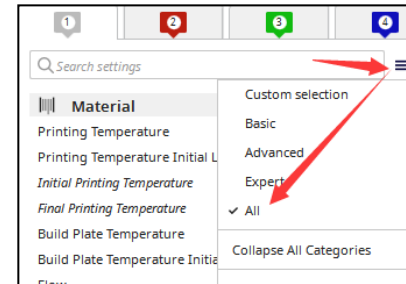
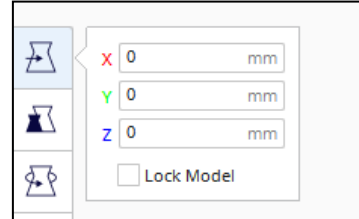
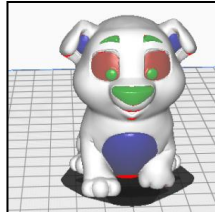
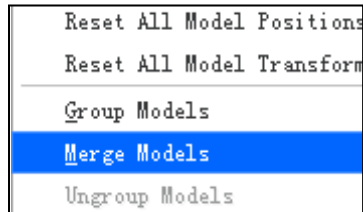


<input checked="" type="checkbox"/> Extruder 1: white PLA - empty	Ctrl+1
<input type="checkbox"/> Extruder 2: Red PLA - empty	Ctrl+2
<input type="checkbox"/> Extruder 3: green PLA - empty	Ctrl+3
<input type="checkbox"/> Extruder 4: blue PLA - empty	Ctrl+4
Select All Models	Ctrl+A
Arrange All Models	Ctrl+R

Load files

Right click the part and assign extruder for each

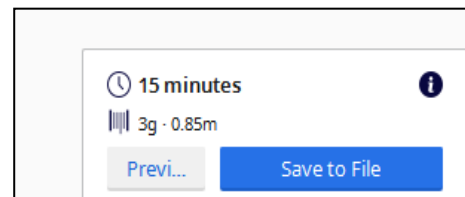
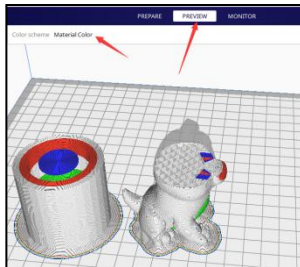
Right click the mouse select all models



Merge

Move/Scale/Rotate the model

Set slicing parameter (Open All mode)



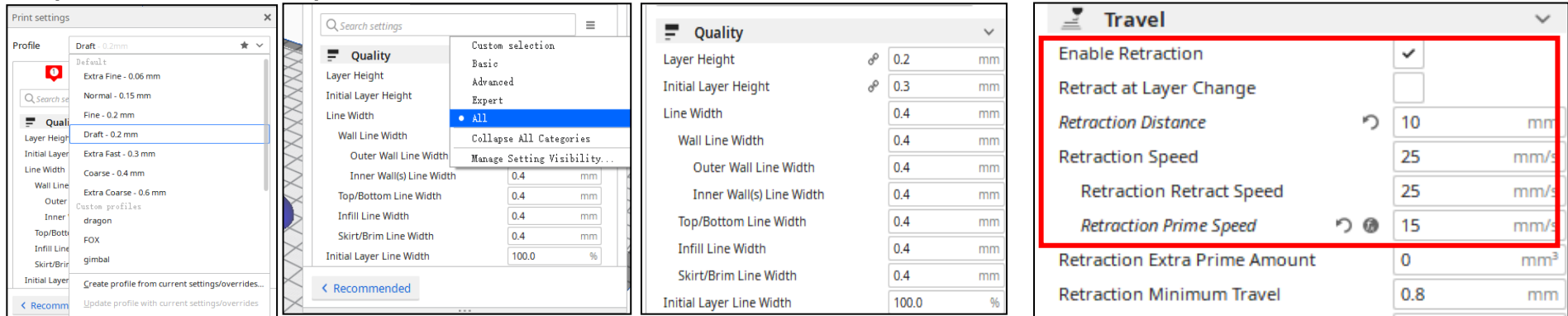
Slicing, preview and save it to PC

Copy the gcode file to SD card, then print it

Slicing multi colors 3d object - slicing

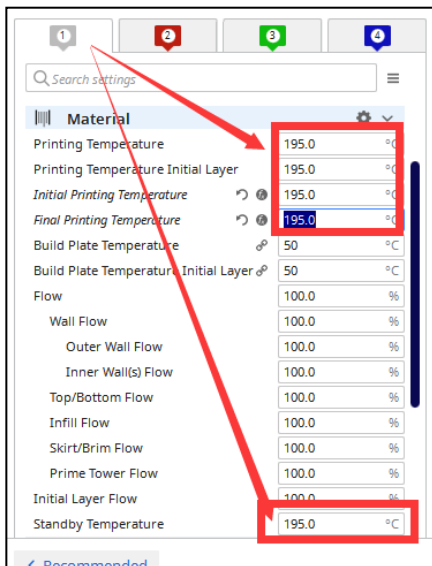
NOTE: When printing settings, please note that it needs to be set for each extruder.

NOTE: The below settings are for PLA filament, if you want to choose other type of filament, please modify the nozzle temperature hotbed temperature to correct value



Set nozzle temperature:

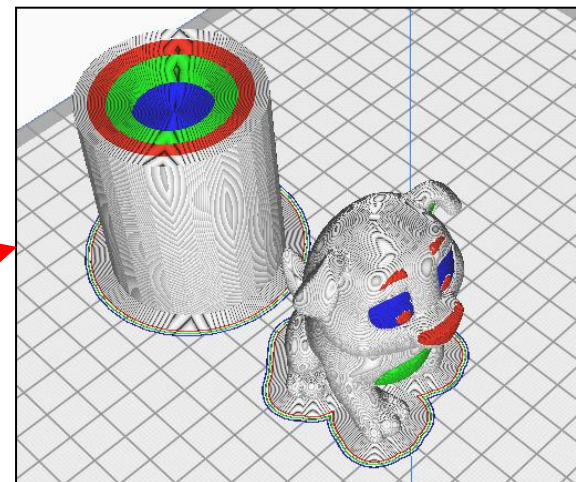
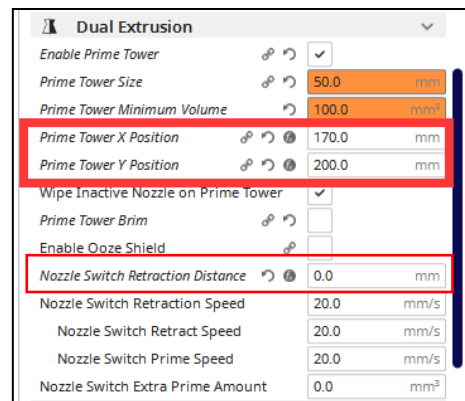
All of the extruders are the same



Set Prime Tower:

You need to modify the position according to your model

Nozzle switch Retraction speed : 0



Slicing more colors 3d object by using virtual extruder

what is Virtual extruder (V-TOOL)

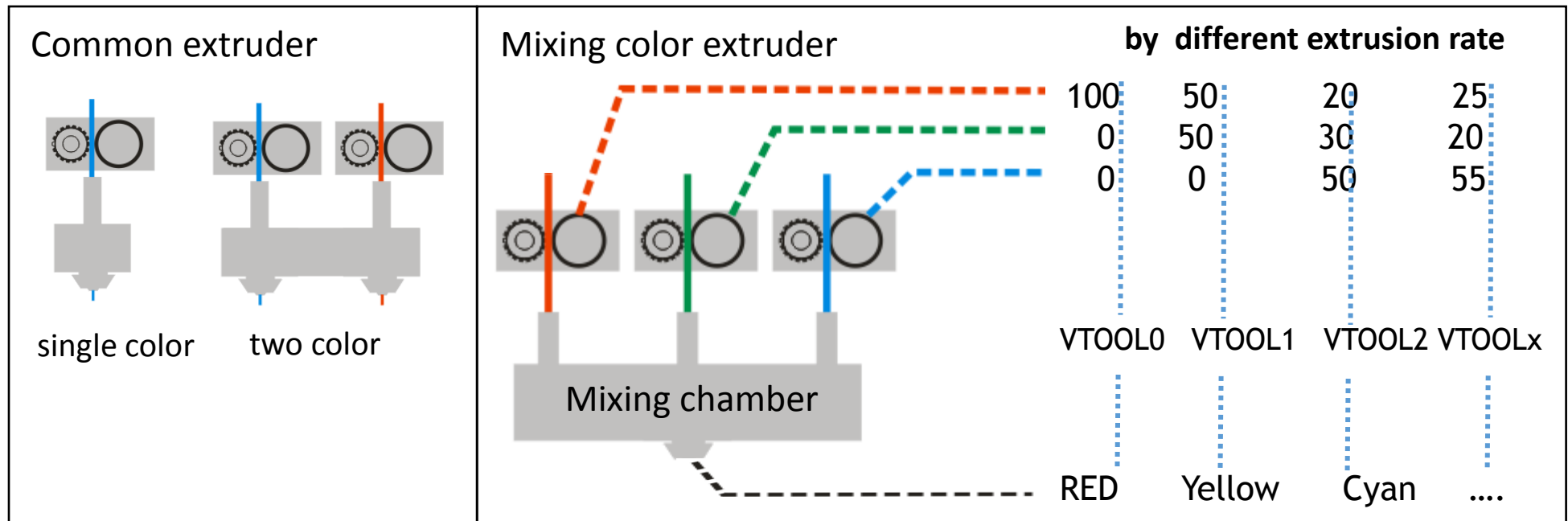
•Tool Chain (Tool head):

For common singel color or general multicolor printer, each extrusion feeder corresponds to one nozzle, so the number of tool chain is equal to the extrusion feeders and nozzles.

For mixing color printer, because it has a mixing chamber to mix 2 or more filament together, so we can set more tool chain than real extruders

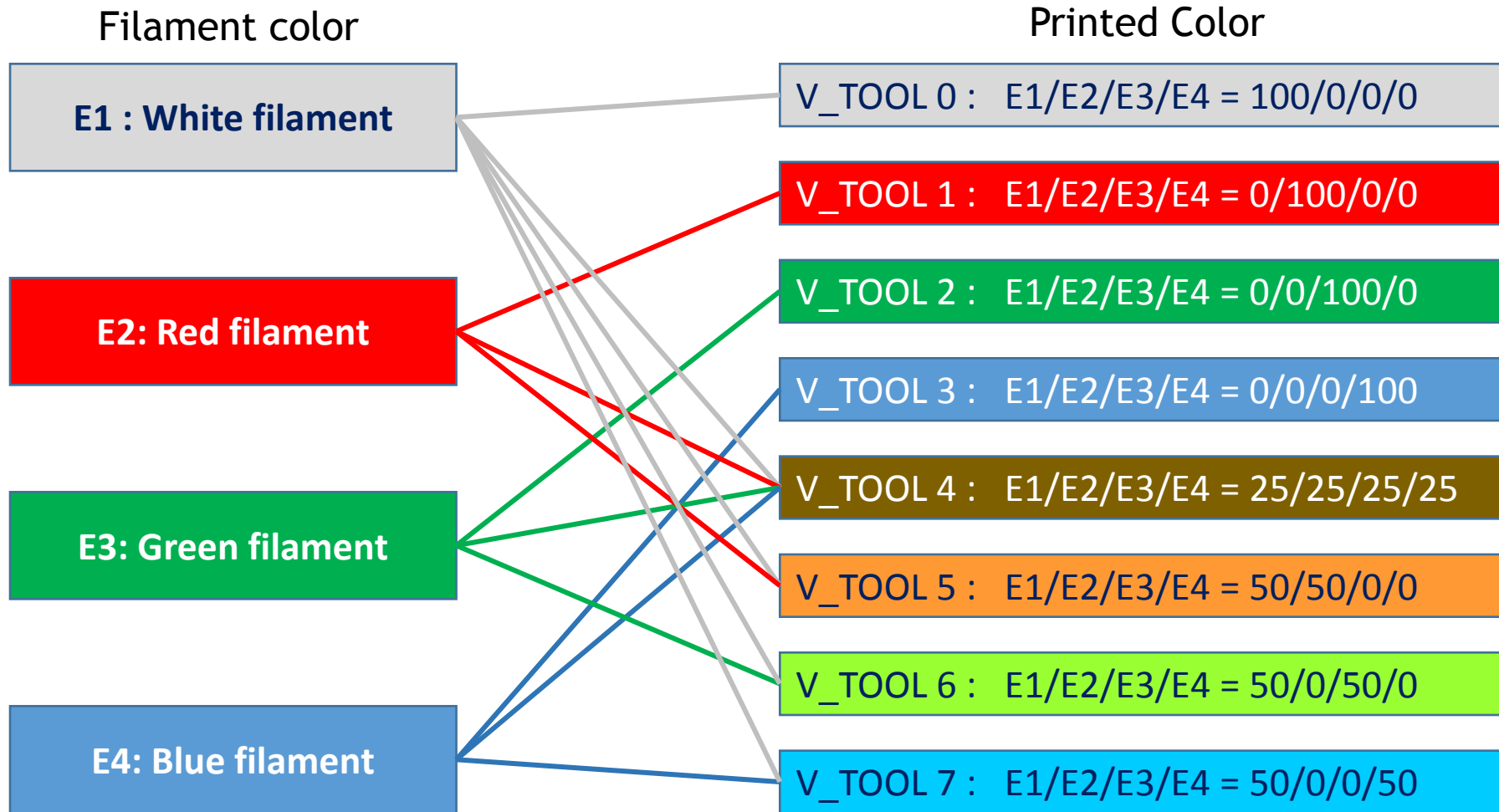
•Virtual Extruder / Virsual Tool Chain:

In mixing color printer, **one combination of extrusion rates can correspond to a new color filament**, in order to distinguish them from the real extruder, they are called Virsual Tool Chain.



Slicing more colors 3d object by using virtual extruder

The following example will show the slice process for using Z9M4 to print 8-color object



NOTE: The colors in the above figure are only used to illustrate the principle, which may be very different from the actual situation

Slicing more colors 3d object by using virtual extruder

How to use Virtual extruder (V-TOOL)

- Step 1: Add a new printer “ZONESTAR Z9M4-mix”
- Step 2: Open the machine setting >>VTOOLx>>Extruder Start G-code
- Step 3: Change the value of the command P[x]

M163 S0 P10

M163 S1 P20

M163 S2 P30

M163 S3 P40

sum = 100

for example the default settings of VTOOL7:

M163 S0 P50 ; Extruder #1 rate is 50%

M163 S1 P0 ; Extruder #2 rate is 0%

M163 S2 P0 ; Extruder #3 rate is 0%

M163 S3 P50 ; Extruder #4 rate is 50%

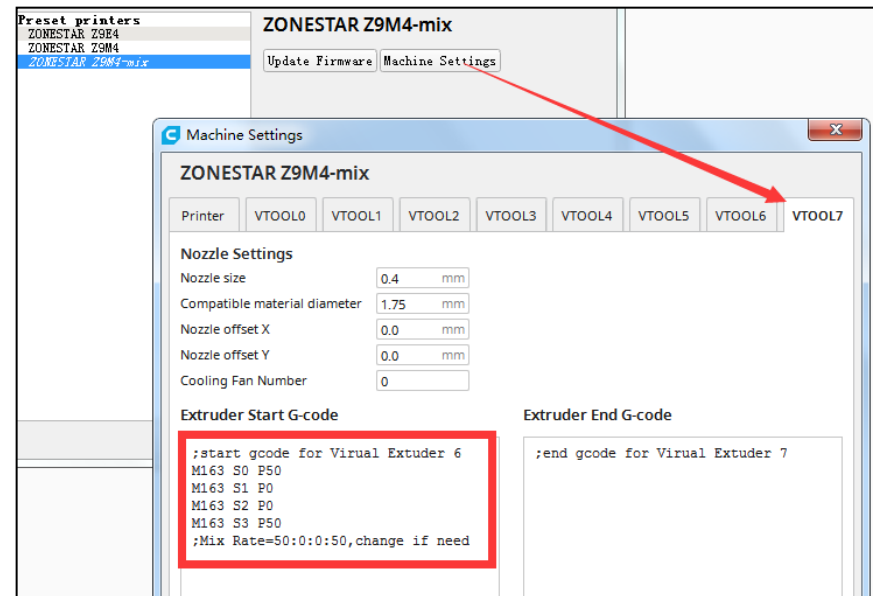
You can change them to

M163 S0 P10 ; Extruder #1 rate is 10%

M163 S1 P20 ; Extruder #2 rate is 20%

M163 S2 P30 ; Extruder #3 rate is 30%

M163 S3 P40 ; Extruder #4 rate is 40%



Then you will have a “new color” extruder VTOOL7, you can assign VTOOL to a part of a multi color 3d model, or assign it to print a singel color 3d model, the slicing steps is the same with 1~4 colors 3d prints.