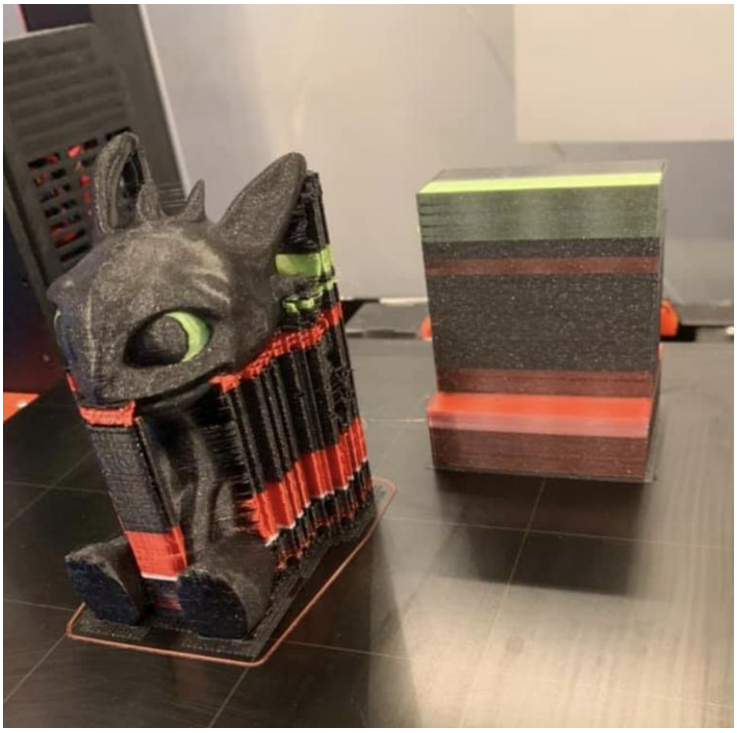


P2PP
User Manual

DISCLAIMER

P2PP is a post processing tool that relies on patterns in the gcode generated by PrusaSlicer in order to insert the required GCODE for the Palette 2 operation. Due to the vast amount of settings in PrusaSlicer it CANNOT be guaranteed that all combinations of settings will produce output that print as intended. P2PP and its developer cannot be held responsible for any damage occurring from using this tool. Use at your own risk

Table of Contents

Introduction

P2PP is a post processing script developed to transform PrusaSlicer MMU2S generated G-Code into G-Code that can be used directly with Palette 2 plugin and hardware. It is an addition to the existing tools provided by Mosaic (like Canvas ad Chroma). Besides the functionality available in the existing tools, it offers the advantage of MMU2S specific features that come with the PrusaSlicer. As a backside, it does not allow for self-painting existing monochrome prints like Canvas does.

In addition to the features available in PrusaSlicer:

- Wipe to object
- Wipe to infill
- Variable Layer heights multi-color prints

It also offers new addon features to further reduce the waste of printing time and material

- Support for tower delta (now also partially implemented in PS2.2)
- Support for full tower reduction with newly generated tower with minimal wipe
- Side wipe support, dumping only needed purge at the side of the bed
- Side Wipe support for Big Brain 3D side wipe mechanism

P2PP is an open source, privately driven initiative held up by a group of 3d printing enthusiasts who help resolve issues where they can.
Special thanks to: Tim Brookman , Khalil Nurallah, Casey Eberle, Paul Kramer, Klause Knute for their help in developing, supporting P2PP and maintaining the support on the P2PP Facebook community page. Many thanks also for the team of Mosaic Mfg for their continuous support and feedback during the development and testing. S

Before diving into P2PP

P2PP offers a lot of nice 3d printing support features to for your Palette 2(Pro)(S)/Palette Plus/ Palette 3 (Pro), but it is important to understand that no tool will ever produce good results when the hardware is not correctly setup and calibrated.

So:

- Make sure your printer is capable of successfully printing single color 3d prints. Sounds silly but if the models you print in one color do not express the desired quality…why would you expect multi colored ones to do so?

- Make sure the extruder is properly calibrated… P2 relies on the gcode defined filament consumption to be the same as the actual filament consumption… any deviation may result in color swaps, early or late transitions, color smear … P2 is a clever device which will try to correct up to a certain level of error but the responsibility with keeping the error low is with the end user.

- More importantly even than the correctness of the amount of filament used is the consistency in filament use. First layers should be well calibrated. The filament flow should be fully unobstructed so no short bends in the feed tube.

- Follow the P2 calibration process using the Mosaic Mfg suggested prints using the Mosaic supplied slicing tools. Though they can be achieved using P2PP, when new it is a safer bet to use Canvas or Chroma

- P2 learns to work with your printer over the course of a few prints. Once they are calibrates, you should receive consistent prints. It is important to remember that doing a significant change to your printer (e.g. changing the number of steps per mm for your extruder) WILL impact the collaboration between palette and printer and new calibration will be needed.

Start simple… P2PP and PrusaSlicer offer a large interesting features, but before swimming across the Atlantic, try getting on the other side of the pool… no kidding… Try to work from a profile you know works in single color on your printer, only when basic multi-color printing is working, turn to features like the tower delta, side wipe, wipe to infill etc.… it is tempting, but most of troubleshooting will link back to the success of simple things… You will probably lose more than the amount of material you are trying to save

Setting up the P2PP

Windows

Download the latest version of P2PP from the DropBox link on the P2PP [P2PP Github Page]
You will have to download your installation file from the development/windows subfolder

Unzip the file to a location of your choice.

In the folder you will find a file P2PP.exe, just double click this file to run it. A window will open explaining how to incorporate p2pp in PrusaSlicer.

Complete the remaining steps in this manual to get a P2PP properly setup

MAC OSX

Download the latest version of P2PP from the DropBox link on the P2PP [P2PP Github Page]

You will have to download your installation file from the development/macos subfolder

Unzip the file to a location of your choice.

Double click the P2PP app and a window will open explaining how to incorporate P2PP script in PrusaSlicer.

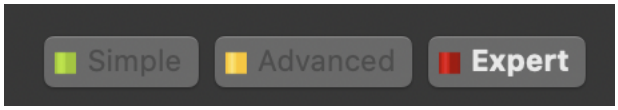
Complete the remaining steps in this manual to get a P2PP properly setup

PrusaSlicer configuration

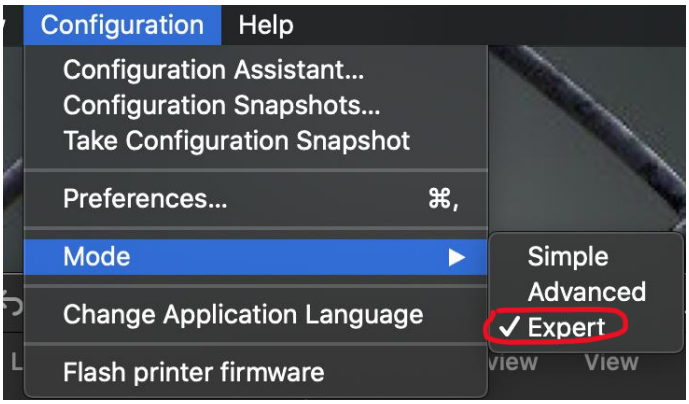
Basic configuration

Put PrusaSlicer in EXPERT mode

There should be 3 buttons labeled Simple/Advanced/Expert in the top right corner of the PrusaSlicer window. Click on the Expert button and confirm that it is highlighted like shown in the picture below:

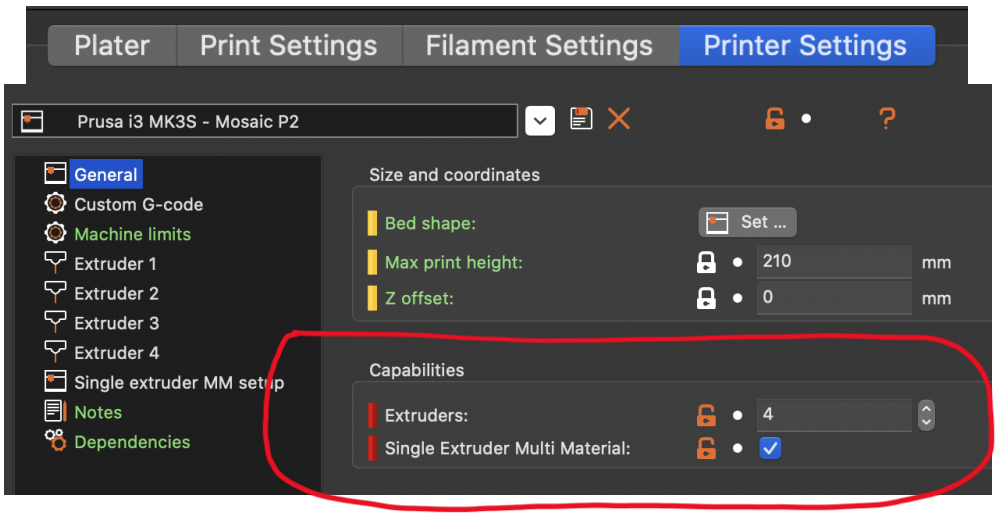


Alternatively, you can also set expert mode using the normal menu settings

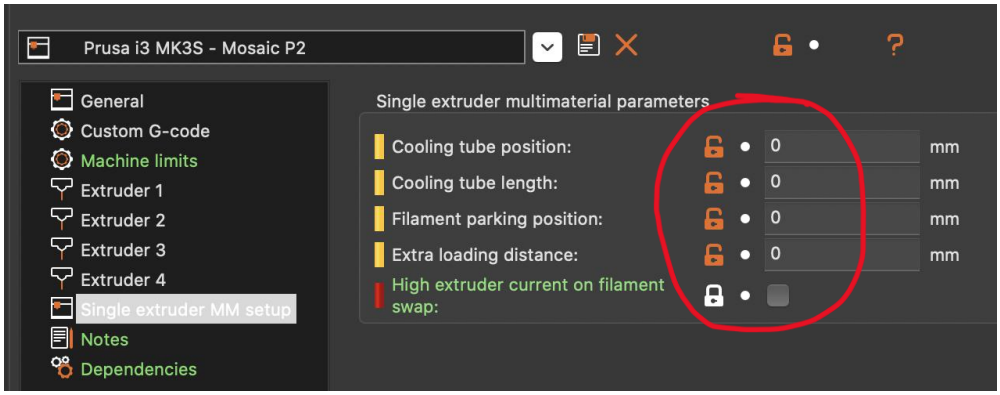


Define the number of extruders (you may have to repeat this for different profiles)

Set the number of extruders to 4 / enable "Single Extruder Multi Material" :

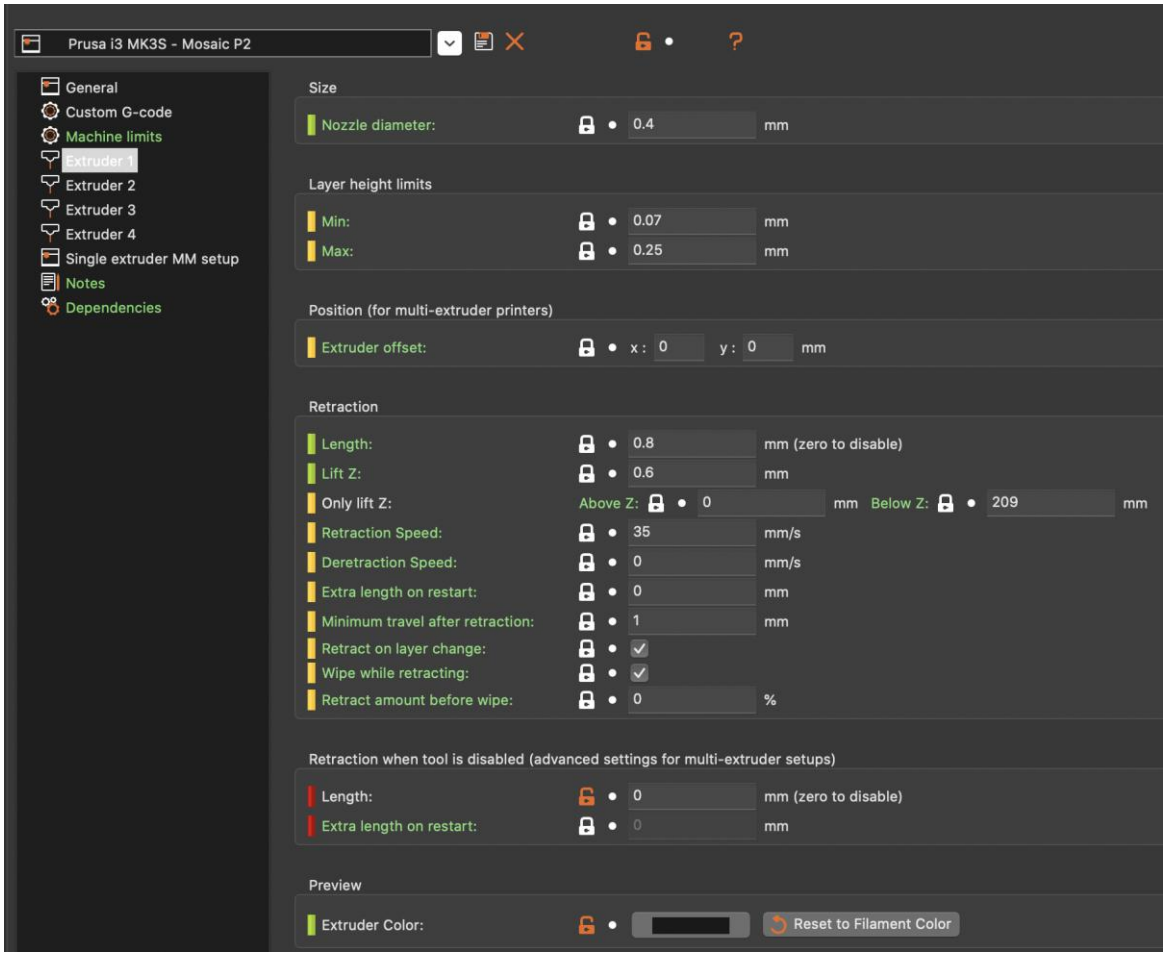


Set all parameters under Single extruder MM setup to zero



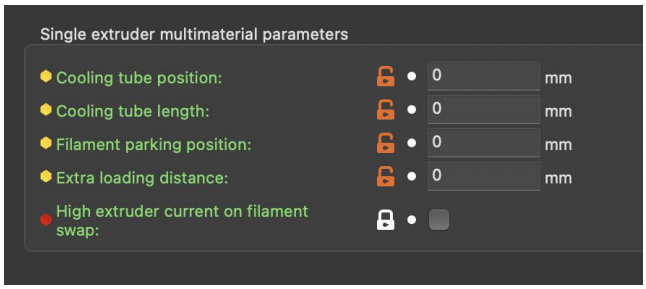
Extruder1/2/3/4 settings:

Make sure the settings of each of the 4 extruders are set correctly. For now the Lift Z cannot be 0. If you don't want a lift Z on retraction, put in a low value (like 0.05)
Settings for retraction when the tool is disables are not used.
You can also set the extruder color here. This is the color that will be shown on the Palette screen during the loading process. The color can also be set from the plater interface.



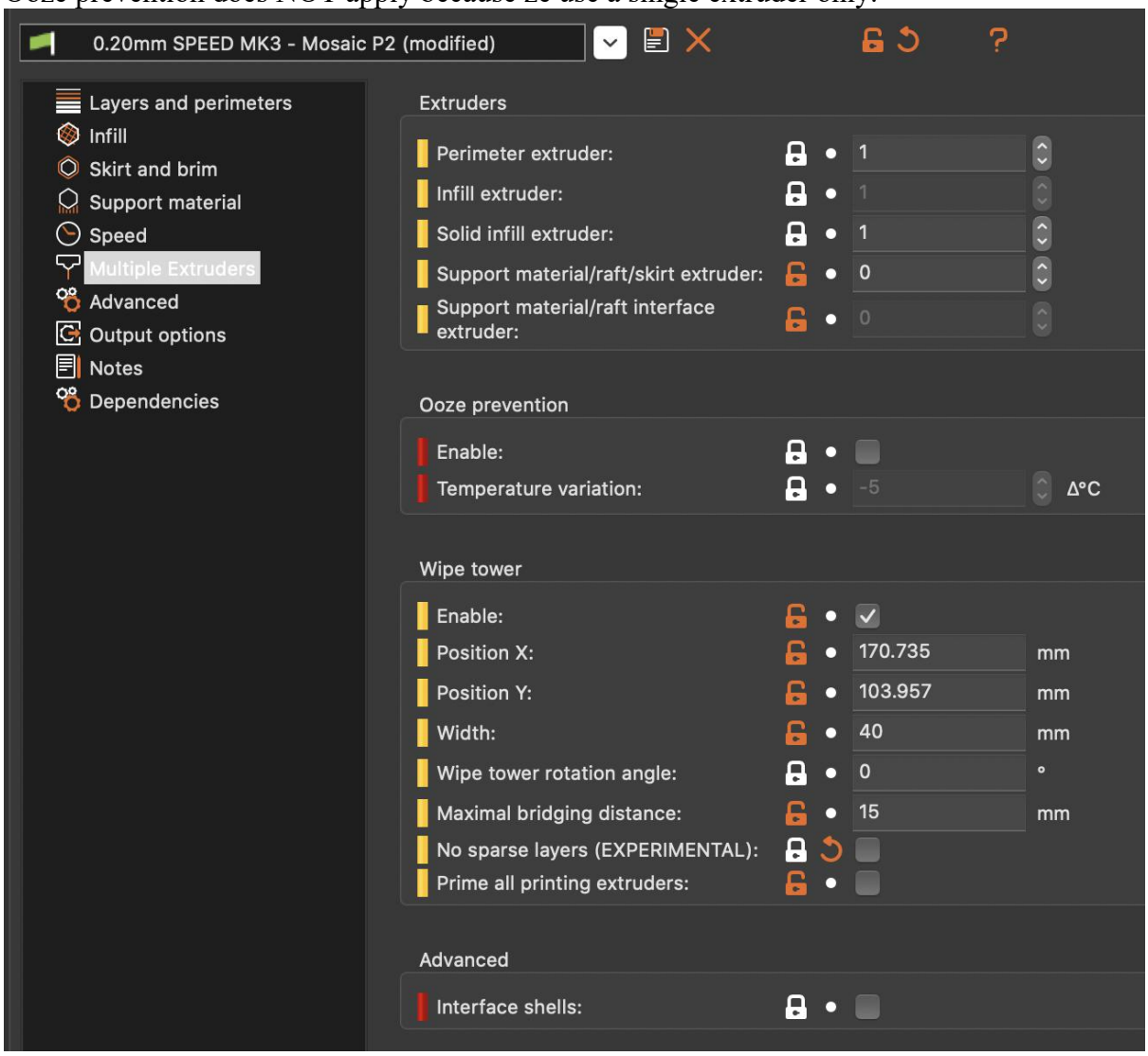
Single extruder MM Setup:

Set all of the following parameters to 0



Tower setup

Keep the wipe tower rotation angle set to 0 for proper operation. Width can be specified here. The location can be set later by dragging the tower during the splicing process. Ooze prevention does NOT apply because ze use a single extruder only.



NOTE: As of **PrusaSlicer 2.9.0**, the {wipe_tower_x} (and y) placeholders are no longer automatically embedded in the G-code. To ensure the wipe tower position is available for downstream processing, **you must explicitly add the following in your End G-code**:

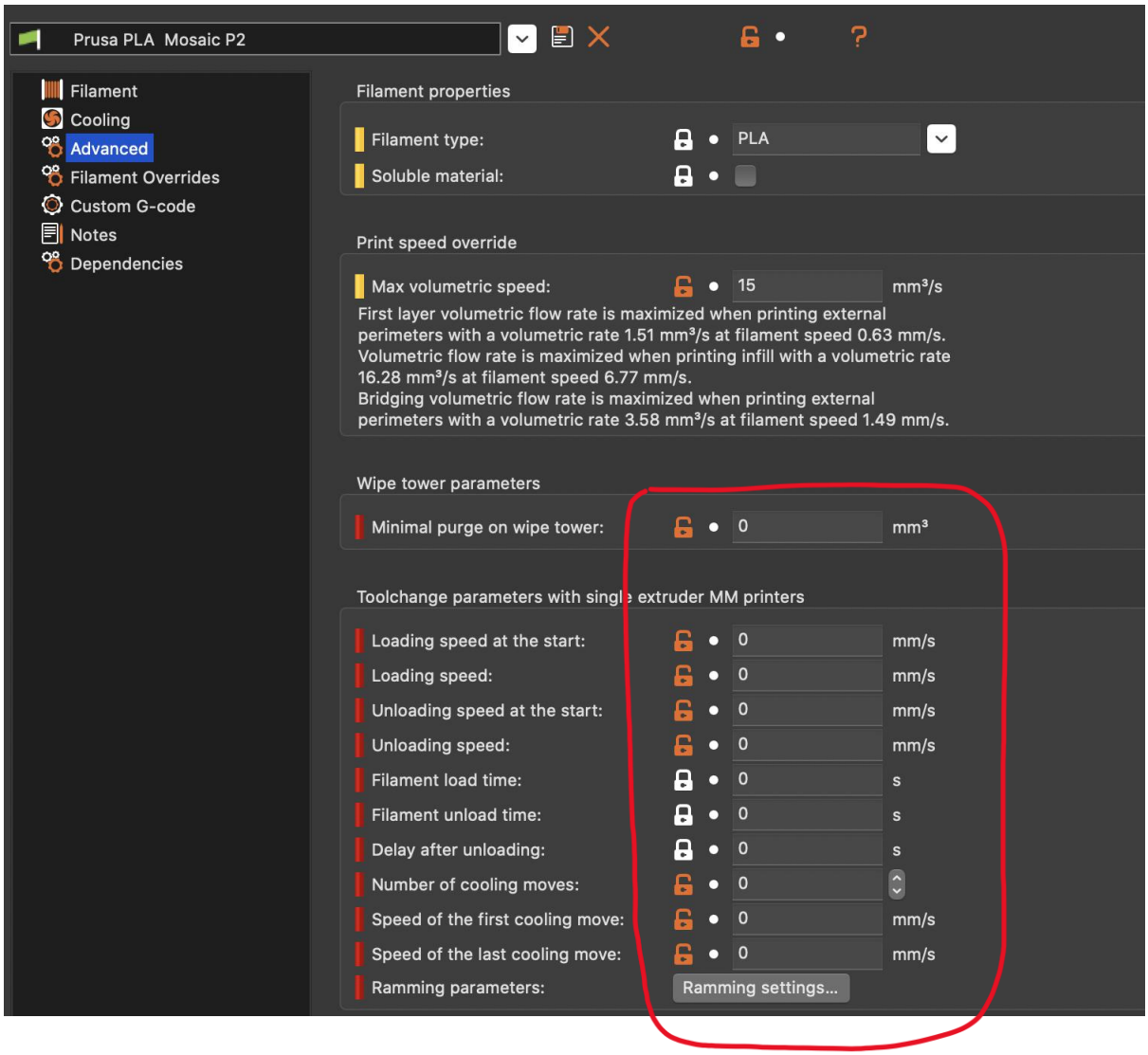
```
; EXTRA_CONFIG_VARIABLES
; wipe_tower_x = {wipe_tower_x}
; wipe_tower_y = {wipe_tower_y}
```

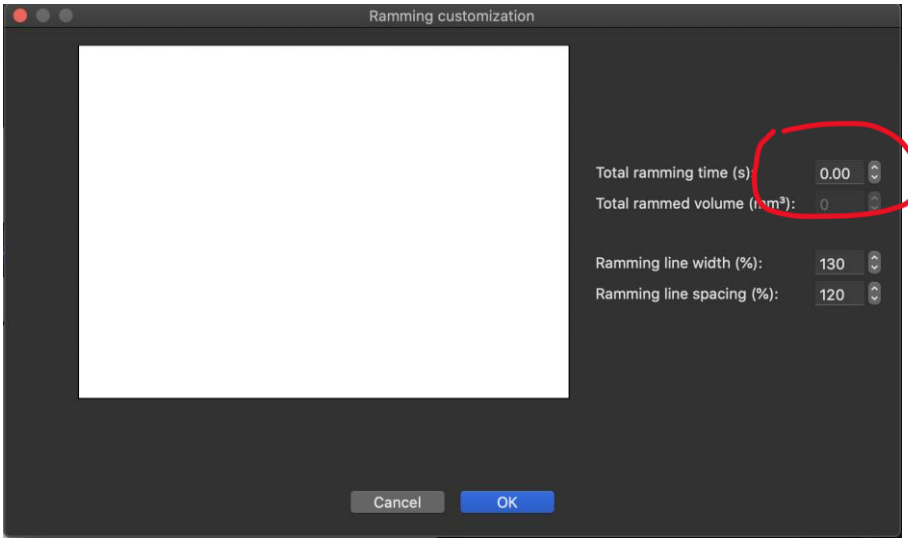
Filament Setup

This step should be repeated for EVERY filament type you want to use with your Palette 2

First step is to set all ramming parameters to 0 as well as all of the tool change and wipe tower related settings under the advances tab of your filament.

Note the filament type (here PLA) listed in the dropdown box. This is the reference to the filament that will later be used when creating splicing algorithms to tell Palette 2 how much heat/compression/cooling will be required to splice this filament together to other types of filament.



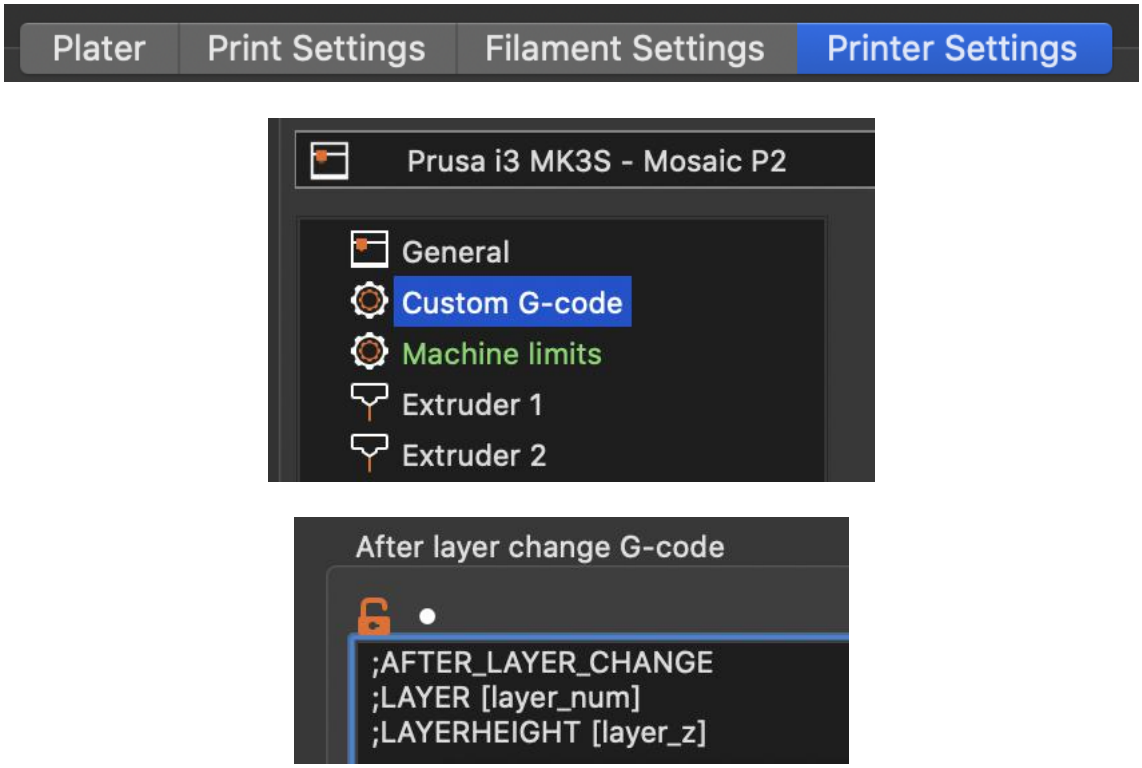

Ramming customization
Total ramming time (s):
0.00
Total rammed volume (mm³):
0
Ramming line width (%):
130
Ramming line spacing (%):
120
Cancel
OK

Layer Configuration

For some of the features P2PP will need to know which features are linked to a particular layer. Therefor a very specific layer setup is required to make sure this information is captures correctly

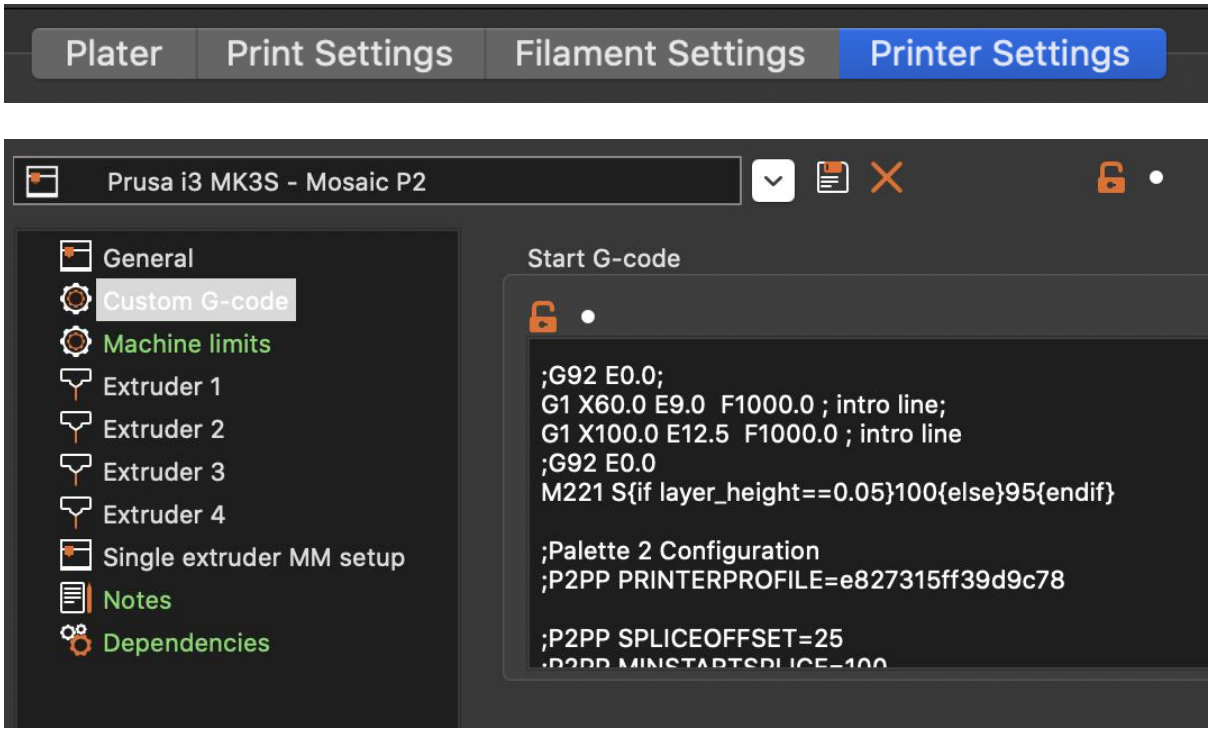
Make sure that the following code appears in the After layer change G-Code (copy this literally) (as of version 4.0.4 the extra LAYERHEIGHT is required):

```
;AFTER_LAYER_CHANGE
;LAYER [layer_num]
;LAYERHEIGHT [layer_z]
```



Printer Configuration

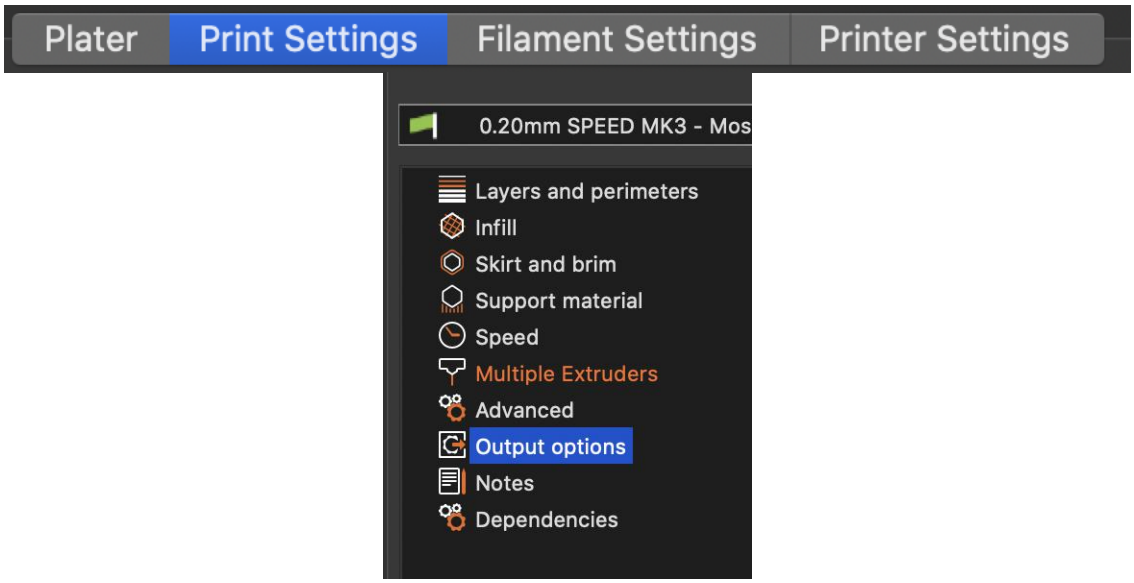
All basic configuration goes into the **Printer Settings → Custom G-Code → Start G-Code**
Yu can group all P2PP config settings at the end of your normal start g-code.

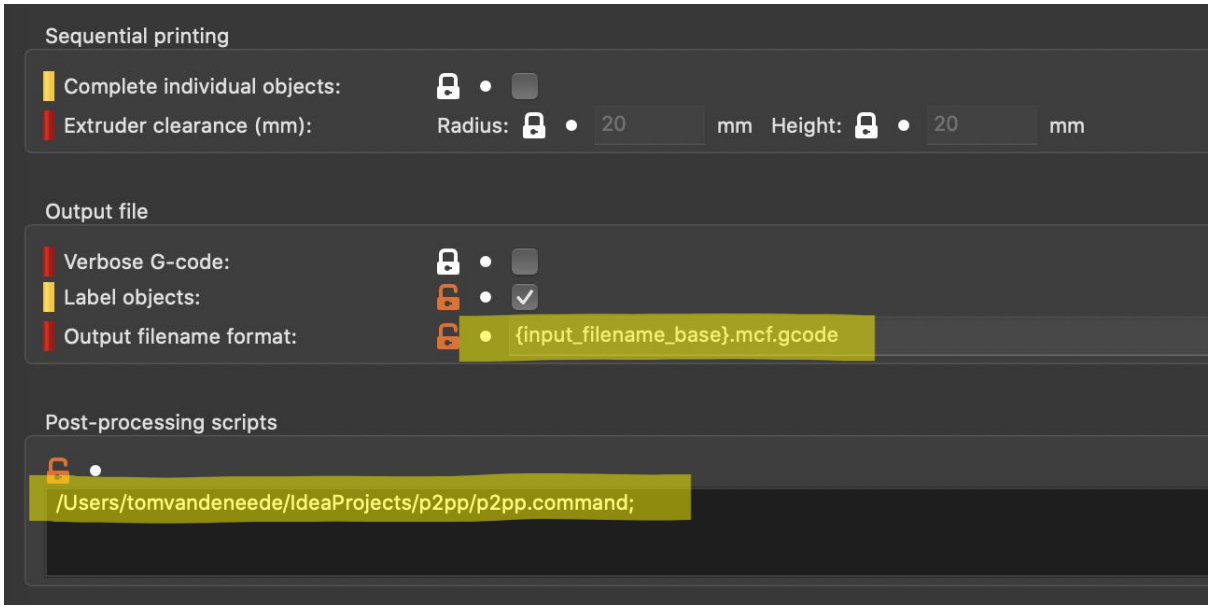


All settings will be prefixed by ;P2PP followed by a parameter name and a setting. Note that all P2PP configuration is considered CaSe SeNsItIvE!!!

Script Configuration in PrusaSlicer

Next thing to do is to configure the P2PP script in PrusaSlicer





You have to specify 2 pieces of information here

- File name template. You can use the current template but it may be interesting to add the .mcf.gcode instead of just gcode. This has no functional purpose but it will help you discriminate between P2 and non-P2 prints in the canvas hub overview.
- Un the post processing script tab you will need to copy the full path of the script. This information you can copy from the window you ran right after you unzipped P2PP and clicked on the bat/command file

```
4.0.2 (Dev version up to date)
Line to be used in PrusaSlicer [Print Settings][Output Options][Post Processing Script]
/Users/tomvandeneede/IdeaProjects/p2pp/p2pp.command
This requires ADVANCED/EXPERT settings to be enabled

Don't forget to complete the remaining Prusaslicer Configuration
```

Palette 2 /Palette 3 processing configuration –

Select Supported Device type

P2PP is able to generate files for the Palette+/Palette2(Pro)/Palette3(Pro). The Palette 3 confiuration needs to be inserted BEFORE anu other configuration to assure proper processing

Default Mode: Palette 2
No additional configuration required
Palette 3 (4 color)

`;P2PP PALETTE3`
`;Optionally preheat processing can be added`
`;P2PP P3_PROCESSPREHEAT`

Palette 3 Pro (8 Color)

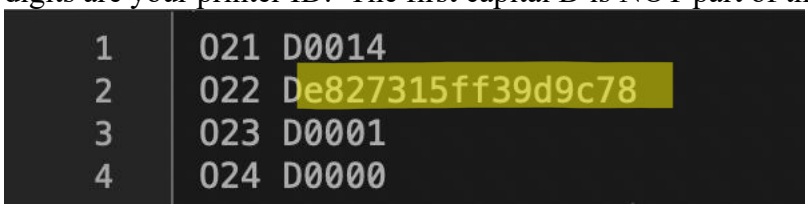
`;P2PP PALETTE3_PRO`
`;Optionally preheat processing can be added`
`;P2PP P3_PROCESSPREHEAT`

Palette + and Palette 2 in accessory mode
See Accessory Mode section in this manual

Printer Profile – PRINTERPROFILE

The printer profile is the unique ID that is linked to a calibration set in your P2. It will determine the loading length, palette 2 specific calibration as well as the long term historic learning factor associated to your printer/palette2 combination. You can make up your own 16-digit hex decimal value or if you are currently using Canvas or Chroma and you want to keep on using the same calibration information you can copy the information form an existing .mcf.gcode file.

In an mcf.gcode file look for a line starting with O22 followed by a D and 16 digits. These 16 digits are your printer ID. The first capital D is NOT part of the printer ID



In the start g-code file should get exactly 1 line with a printer profile configuration

```
;P2PP PRINTERPROFILE=e827315ff39d9c78
```

Printer Bed Size and position – BEDORIGINX/BEDORIGINY/BEDSIZEX/BEDSIZEY

As of version 5.0, P2PP will determine the size of the bed and the bounding rectangle from the bed shape information embedded in the PrusaSlicer file. The program will automatically add 5mm to the Y-size to account for the intro line generated in the startup code.

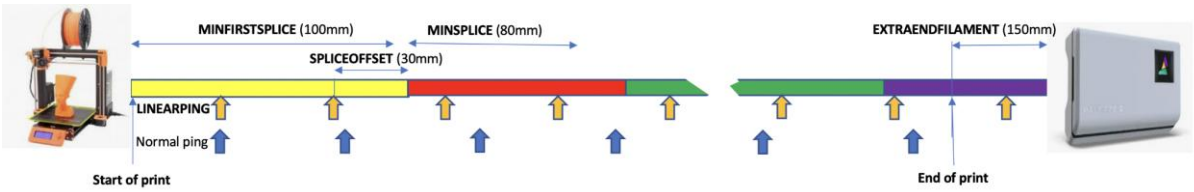
If a none-rectangular bed is detected, he default behavior of P2PP is to take the bounding rectangle for your bed shape. In that case the tower needs to be fully dragged outside of this rectangle to engage features like side wipe and BB3D purging.

You can still manually override the definition of the bed size and origin of the printer.

e.g.

```
;P2PP BEDORIGINX=0
;P2PP BEDORIGINY=-5
;P2PP BEDSIZEX=250
;P2PP BEDSIZEY=215
```

Splice Configuration



- SPLICEOFFSET
- MINFIRSTSPLICE
- MINSPLICE
- EXTRAFILAMENT
- LINEARPINGLENGTH

Splicing Offset – SPLICEOFFSET

Spliceoffset defines the amount of extra filament that is added to the first splice. It will force the color swap further into the purge. As a result, when a color change occurs, the printer will still continue to print in the old color for the amount defined in the spliceoffset parameter. This gives the print a small buffer in case more filament was consumed than foreseen. Making the offset too small may result in early transition. On the other hand but printing in the old color during the purge sequence, you remove that amount from the overall purge so if you make spliceoffset too large you will end up having color bleeding or late color transitions. 34-40 seems to be a good value. The value is specified in millimeter

```
;P2PP SPLICEOFFSET=40
```

Minimal Splice Lengths MINSPLICE/MINSTARTSPLICE

The length of splices that can be generated by the Palette 2 is limited to 100mm for the first splice and 80mm for consecutive splices. The values can be brought down slightly at your own risk. It is good practice to leave them to the default values.

```
;P2PP MINSTARTSPLICE=100
;P2PP MINSPLICE=80
```

Extra filament at the end of the print – EXTRAENDFILAMENT

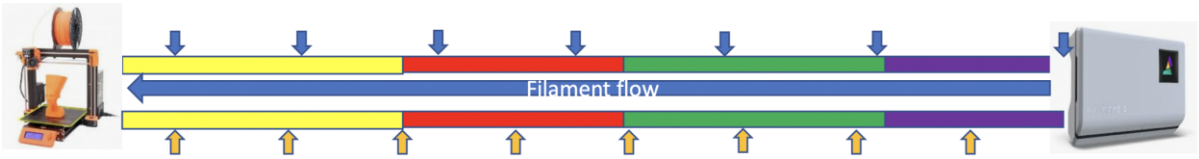
Depending on the setup of your printer you may need to add an extra length of filament to make sure the filament is driven by the filament motor until the very end of the print. On a direct drive a value ot 100 to 150mm should probably be sufficient, on Bowden printers where the extruder motor is further away from the extruder, longer lengths are needed.

Note: the extra filaments. This parameter is specified in millimeter.

```
;P2PP EXTRAENDFILAMENT=150
```

Linear Ping setting – LINEARPINGLENGTH

Normal ping – distance between the pings increases throughout the print. Each next ping distance is approx. 3% longer than the previous. The first ping occurs after 350mm of printing. This can result in less strict filament consumption in later stages of the print.
Each ping is represented by ⬇ in the diagram below



Linear ping – distance between the pings stays constant throughout the entire print. The distance between pings can be defined by the user. The parameter should be specified in millimeter. The default distance is 350mm
Each ping is represented by ⇧ in the diagram below

```
;P2PP LINEARPINGLENGTH=350
```

Limiting the purge speed – PURGETOPSPEED

If you are using the PrusaSlicer generated tower code in unprocessed mode or in tower delta mode you may find the purge tower is printed too fast. You can prevent this add the PURGETOPSPEED (in mm/min) to limit the speed at which purge is printed.

Splicing Algorithms

One of the most important settings is the definition of how splices should be generated. Splices are defined by 3 numbers

- Heating
- Compression
- Cooling

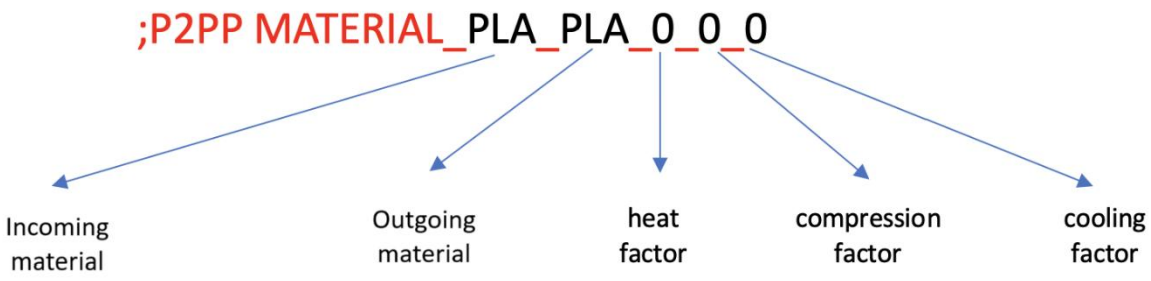
Important Note: Due to the different processing depending on the printer model in use, any of the following commands needs to be placed BEFORE the splicing algorithms in the startup gcode:

```
;P2PP PALETTE3
;P2PP PALETTE3_PRO
;P2PP ACCESSORYMODE_MAF
;P2PP ACCESSORYMODE_MSF
```

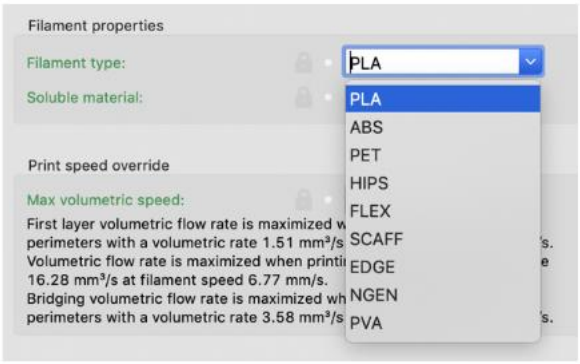
A default splice has 3 numbers you can tune the settings for your material. The numbers can be obtained using the standard splicing tuning process as defined by Mosaic Mfg. They represent the heating, compressing and cooling factor.

It is good practice to put all of your splicing algorithms into the g-code startup sequence. This will prevent surprises when mixing materials later on.

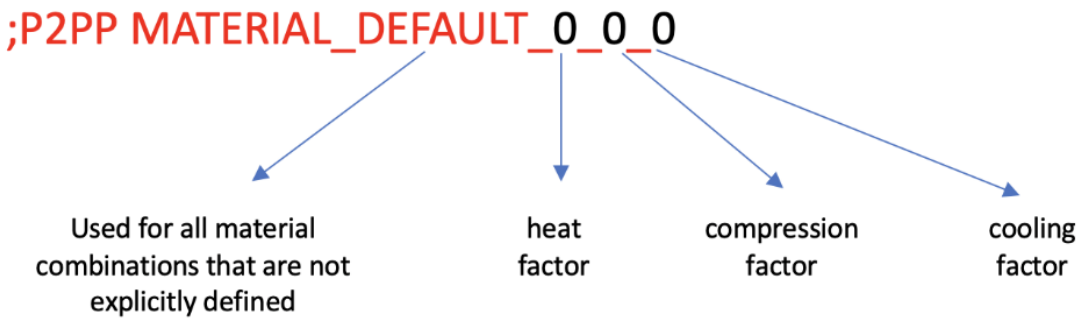
P2PP supports 2 ways to define your splices:



First way is to describe the heat/compression/cooling factor for a splice between two materials. The name of the material (in this case PLA) is taken from the filament type defined in the filament descriptors within PrusaSlicer:



It is possible to define a default splice setting just in case no appropriate splice setting is defined.



This sets the default splice values in case no splicing algorithm is defined for 2 materials used in the print. P2PP will default to this process any time materials are fused that have no specific splice definition.

In some cases the same material could require slightly different settings. In that case you can apply a filament override. This is done by adding the following line to the filament custom startup GCODE. Add a line as follows (in this case we define a new filament name PLA2)

```
;P2PP FILAMENTOVERRIDE=PLA2
```

This will tell P2PP to use PLA2 instead of the standard material taken from Prusaslicer.
You can then refer to PLA2 in your splicing algorithms

eg

```
;P2PP MATERIAL_PLA_PLA_0_0_0
;P2PP MATERIAL_PLA_PLA2_-1_0_0
;P2PP MATERIAL_PLA2_PLA_0_0_0
```

Special Features

Feature Compatibility Matrix

	ABSOLUTE	TOWER DELTA	FULL PURGE REDUCTION	SIDE WIPE	SIDE WIPE Big Brain
ABSOLUTE	X	X	X	X	X
TOWER DELTA	X	X	FULL PURGE	SIDE WIPE	SIDE WIPE
FULL PURGE REDUCTION	X	FULL PURGE	X	SIDE WIPE	SIDE WIPE
SIDE WIPE	X	0	SIDE WIPE	SIDE WIPE	SIDE WIPE
SIDE WIPE BIG BRAIN	X	0	SIDE WIPE Big Brain	SIDE WIPE Big Brain	X
SKIRT	X	X	X	0	0
AUTOADDPURGE	X		X	X	X
TEMPERATURECONTROL	X	X	-	-	-

(*) SIDE WIPE is triggered by the position of the purge tower. This position is incompatible with all the other purging modes

(*) X = can be combined 0 = incompatible

(*) if two features are active the table shows which feature takes precedence. The other feature will be discarded

Absolute Extrusion

During the gcode generation process in PrusaSlicer, only relative extrusion code is supported. That means that each extrusion command in the file is specifying the length relative to the current position of the extruder. The backside is that rounding error accumulate over time and this may have a negative effect on the power consumption in long prints. By converting the file to absolute extrusions, the error is still there to a lesser extent, but it is also taken into account for the pings so will be part of the Palette 2 correction mechanism.

To enable the extra cycle at the end of the processing to convert the the purge add the following line to your start g-code

```
;P2PP ABSOLUTEEXTRUDER
```

Configuration End Marker

A new feature as of version 5.6.0 is the configuration end marker. It is an indication for the parser to stop looking for ;P2PP commands thus saving time during the processing of the file.

Processing will continue for each new tool to make sure that filament overrides are correctly detected.

```
;P2PP CONFIGEND
```

Side Wiping

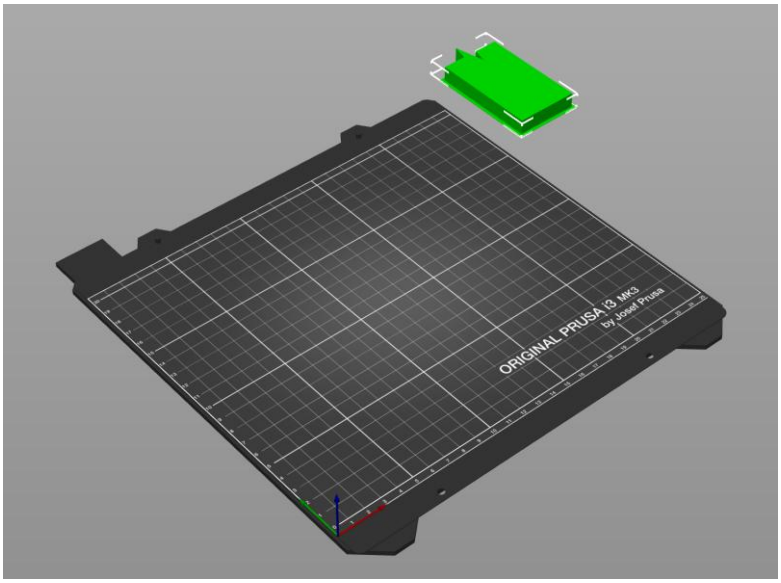
NOTE: Starting with **PrusaSlicer 2.9.0**, the **Side Wipe** feature is no longer supported. This is because **the wipe tower can no longer be positioned outside the printable bed area**, which was essential for side wiping to function properly.

Side wiping is a mechanism that fully replaces the purge tower but extrusions that happen off-bed and that will not make part of any physically printed structure. Depending on the method used you will either get an extrusion spaghetti or small blobs of plastic.

The advantage of side wipe is that no purge structure needs to be maintained so you just purge the exact amount you need, no more no less.

Downside is that you will end up with “non-structured” plastic blobs or spaghetti… when doing this make sure you have something that catches this purge so it cannot make it to your print. It could easily turn your extruder in a great mass of plastic..

In order to enable side wipe you need to move the purge block fully off the build plate.



Bed Side Purge

This is the first way of doing side purge. It will move the carriage to the side of the bed and extrude spaghetti of the side of the bed while moving back and forward on the Y-Axis.

In order to setup this form of side wipe you need

- Setup the X-Position to which the printer should move
- Define the minimal and maximal Y-coordinate between which the printer will move
- Since there is no backpressure on the extruder SIDEWIPECORRECTION allows for a correction of the amount of purge made during this form of side wipe correction.
- Optionally you can add a side wipe ZHOP to avoid the nozzle from touching the print before moving to the side location.

```
;P2PP SIDEWIPELOC=X254
;P2PP SIDEWIPEMINY=45
;P2PP SIDEWIPEMAXY=195
;P2PP SIDEWIPECORRECTION=1.0
;P2PP SIDEWIPEZHOP=1.0
```

Stationary Side Wipe (as of v5.2.0)

Stationary side wipe is similar to regular sidewipe, but if does not move the Y-Axis in the process. It is achieved by setting both SIDEWIPEMINY and SIDEWIPEMAXY to the same value. The X-location is determined by the SIDEWIPELOC parameter.

The WIPEFEEDRATE parameter will determine the speed of extrusion. Recommended value for the WIPEFEEDRATE parameter is 200. You can try higher values, but increase in speed can result in loss of steps on the extruder stepper motor if the hotend is unable to keep up. This will impact your pings!

```
;P2PP SIDEWIPELOC=X254
;P2PP SIDEWIPEMINY=45
;set SIDEWIPEMAXY to the same value as SIDEWIPEMINY
;P2PP SIDEWIPEMAXY=45
;set WIPEFEEDRATE is required to override default value!!
;P2PP WIPEFEEDRATE=200
```

Big Brian 3D Purge Mechanism

A second way of doing purge is collecting the purge in a Big Brain 3D mechanism

This device is currently only available for the Prusa MK3/MK3S printers and will require a stock extruder and x-idler. Step files are available when you purchase the device so you can try to adapt to your own printer.

The device comes with its own calibration guide. You will have to take the values from your calibration to complete the setup in P2PP

The following parameters need to be set to activate side wipe. Note that for side wipe to activate the purge block needs to be moved OUTSIDE of the heated bed. The Purge position needs to be taken from the calibration results for your printer.

```
;P2PP BIGBRAIN3D_BLOBSIZE=40
;P2PP BIGBRAIN3D_COOLINGTIME=20
;P2PP BIGBRAIN3D_PURGEPOSITION=255
;P2PP BIGBRAIN3D_MOTORPOWER_HIGH=450
;P2PP BIGBRAIN3D_MOTORPOWER_NORMAL=300
;P2PP BIGBRAIN3D_FAN_OFF_DELAY=2000
;P2PP BIGBRAIN3D_ENABLE
;P2PP BIGBRAIN3D_PRIME_BLOBS=2
```

The other parameters are taken from the manufacturers website. The BLOBSIZE of 40 is the default value and all BLOBS will be 40mm of filament equivalent in size. This means that all purging sequences are rounded to the nearest greater multiple of 40mm

Cooling is det to 20sec, but could be reduced depending on the material used and the environmental situation. The blob needs to be hard enough to be pushed out of the way by the flicker arm

The motor power settings are defaulted to the manufacturers suggestions as well.

The default High power value is 450, if you see that the motor is unable to hold position and you see layer shifts in your print you may need to increase this setting or reduce the number of springs. Increasing the value will increase the temperature of the X-axis motor. Further active cooling may be required to prevent damage.

The **BIGBRAIN3D_FAN_OFF_DELAY** parameter defines the delay between turning off the fan and the extrusion. This allows the fan to be fully off when the blob creation starts. The value for this parameter is defined in miliseconds.

The `BIGBRAIN3D_PRIME_BLOBS` parameter can be used in case of short first splices to increase the length artificially. Each blob represents the amount of filament stated in the BLOBSIZE parameter

Tower Delta

Tower delta is the principle of not printing empty tower sequences that take up time and filament. Instead the tower grows at a slower pace than the print. This creates a risk that the print head or the beam may hit the actual print while printing the purge. In order to minimize the risk it is good practice to group the printed objects in front of the purge and to one side of the bed and put the tower on the diagonal opposite (back side) of the print.

PrusaSlicer has this feature built in as of version 2.2. The major difference between the PrusaSlicer implementation and the P2PP implementation is that in P2PP you can specify the maximum difference between the print and the tower to mitigate the risk of hitting the print.

There is one parameter that is used for both activating and setting the maximum delta of a tower delta print:

```
;P2PP PURGETOWERDELTA=10
;P2PP WIPEFEEDRATE=3000
```

Adding this parameter allows for the tower to grow 10mm lower than the actual print. If you do not want to limit the difference, either put in a large number (999) or use fullpurgereduction feature described later

To disable the tower delta, put a value of 0

Make sure you have the correct after layer gcode inserted as described above or the feature will NOT work correctly

The Tower delta function is useful on prints where you have lengths of print in a single color. (i.e. layers with no color change). These layers in general cause empty layers to be created in the purge tower which can easily be ignored.

The wipe federate specifies the maximum federate during wiping

Full Purge Reduction

Full Purge Tower reduction is similar to Tower Delta but

- Has no difference in the number of layers
- Will generate a whole new purge tower (will be used for other features in the future)

```
;P2PP FULLPURGEREDUCTION
;P2PP WIPEFEEDRATE=3000
;P2PP AUTOADDPURGE
```

Full purge tower reduction will use the same amount of filament as Side Wiping but it will still create a physical purge tower that will need more time to create

The wipe federate specifies the maximum federate during wiping

There is an experimental setting AUTOADDPURGE automatically adds purge length in case a short splice is detected. This is only intended for occasional short splices, if there are many short splices in the print, the purge tower will grow over the print height. This will casue issues.

Accessory Mode [still under development]

Accessory mode prints generate splicing sequences in a separete MAF/MSF file that is put on an SD card that is inserted into the Palette 2/Palette. The pings are inserted in the form of delays during the print. As such the print can be executed directly from SD card in the printer without the need of an Octoprint.

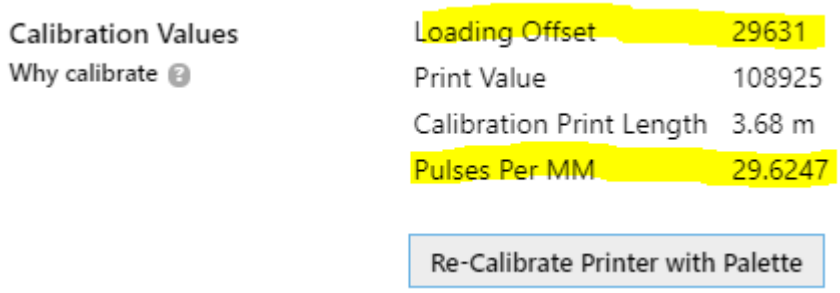
P2 Accessory Mode

```
;P2PP ACCESSORYMODE_MAF
```

Palette + Accessory Mode

In this mode, P2PP can be used in conjunction with the Palette+, by generating a MSF file that can be loaded on the SD Card, just as if it were generated by Chroma / Canvas. It is important to note that the values below are not what you see on the Palette+ Screen, but are obtained from Chroma, after completing the calibration.

```
;P2PP ACCESSORYMODE_MSF
;P2PP P+PPM=<ppm value>
;P2PP P+LOADINGOFFSET=<loading offset>
```



Temperature Control (Thanks to J. Giesser for the suggestion) version 4.12.0

```
;P2PP TEMPERATURECONTROL
```

When set this setting will change alter the temperature settings in the output file. This can be useful when using filaments that require different processing temperatures. The temperature control feature will make sure all purges are handled at the highest temperature to prevent the hotter printing filament to clog on the heat-up or cooldown.

When moving from high to low temperature, the printer will purge and will reduce the temperature AFTER all purging has completed

When moving from low to high, the printer will wait for the hot end to heat up over the tower prior to purging.

When using filament such as PVA, printing at the hottest setting may cause the filament to burn and cause very difficult to remove clogs. Use this feature with caution

Non-Print related settings

SAVE UNPROCESSED GCODE (as of version 4.13.0)

Occasionally we will ask you to send us the unprocessed gcode for your project to replicate specific issues during the processing. Under normal circumstances the original code will be overwritten buy the processed gcode to get most compatibility with the Prusa Slicer.

In order to make the generation of the unprocessed file a little easier a new config code was added to do just this.

```
;P2PP SAVEUNPROCESSED
```

Setting thispaarameter will generate a new file during processing which has exactly the same name as the processed file but a suffix _unprocessed is added to the filename. So in case you generate a filename test.mc.gcode, the programme will generate this file as well as a file named test.mcf_unprocessed.gcode. When needed you can send in this file.

CHECKVERSION

Adding the checkversion keyword to your stag code will trigger P2PP to download the information about the latest master/dev online versions and warn you if updates are available

```
;P2PP CHECKVERSION
```

CONSOLEWAIT

Setting the CONSOLEWAIT parameter will trigger P2PP to wait for user response even if no warning were issues

```
;P2PP CONSOLEWAIT
```

IGNOREWARNINGS

Ignore warnings will close the window even if there were warnings during the processing

```
```

```
;P2PP IGNOREWARNINGS
```

DEBUGTCOMMAND

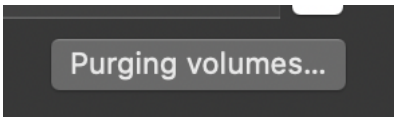
Leave the T-commands untouched in the print so it can be previewed in g-code previewers while maintaining the information on the tools used (the files generated this way will NOT print correctly with the P2)

```
;P2PP DEBUGTCOMMAND
```

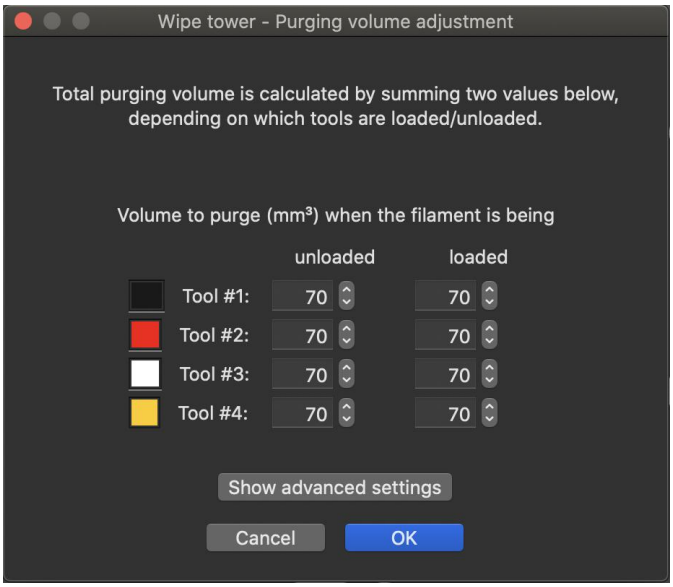
Purge/Wipe length

The quality of your color transitions will greatly depend on the purge or wipe length defined in PrusaSlicer.

When in platter vies mode in a multicolor setup, you will notice a Purging Volumes button right above the object tree windows



Clicking this button will bring up the purge volume adjustment dialog.



The values in this diagram are defined in mm^3 (volume of filament), not in mm (length of filament). $70mm^3$ of filament is about 70/2.4 mm of filament.

The length of the purge will depend on the mature of the filament used. The effective length of purge generated is the sum of unload of the old value and the load value for the new filament.

It is good practice to keep the minimal purge around 180mm so you avoid short splice specifically when using layers with only tiny details in a specific color.

As a rule of thumb:

- Strong colors (e.g. red/black) will need a low load value / high unload value
- Weak colors (e.g. white transparent) will need high load / low unload values

So going from black to white will be unload black + load white = high value
The other way around form white to black, will add low unload + low load = low value

In modes where the tower is generated by P2PP, an extra amount of filament can be added automatically to meet the min splice length requirements for Palette 2 hardware.
For compatibility of this function with other processing modes check the matrix above.

The feature is activated by adding the following line to your start g_code under printer settings

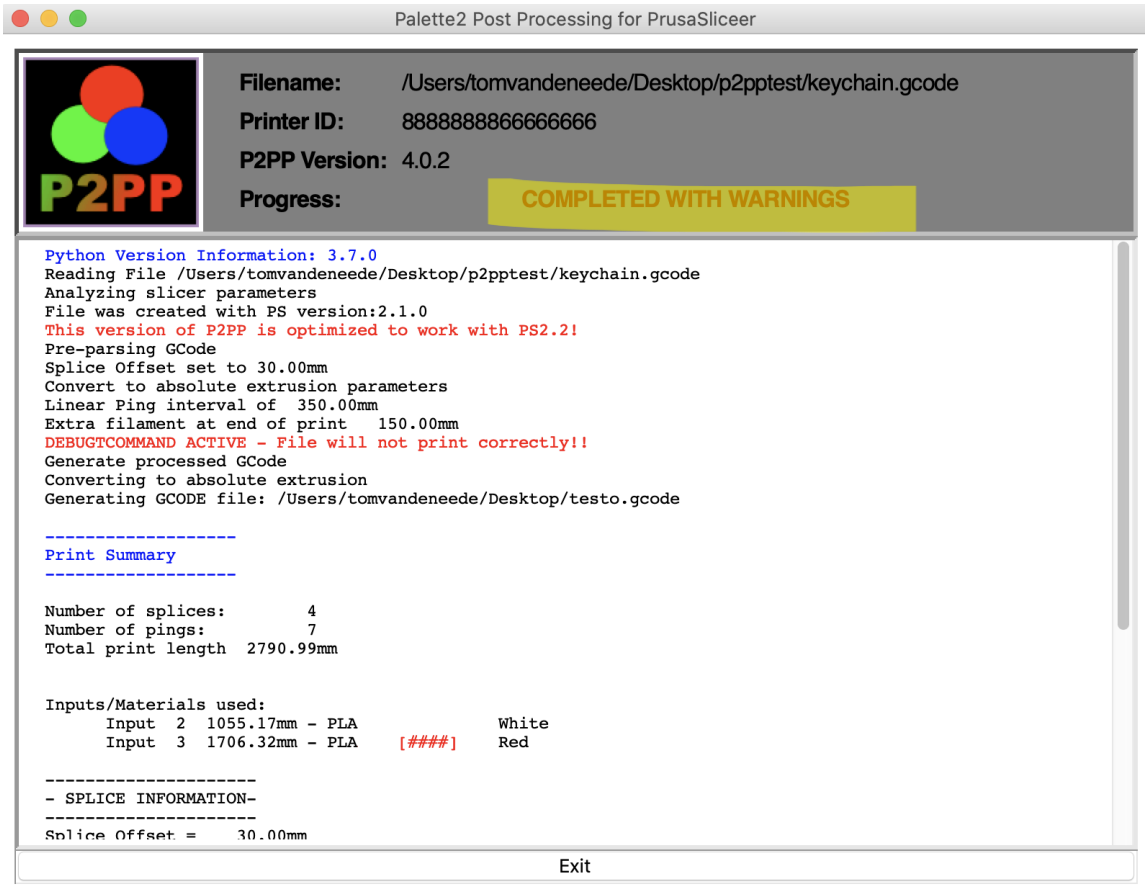
```
;P2PP AUTOADDPURGE
```

Running P2PP

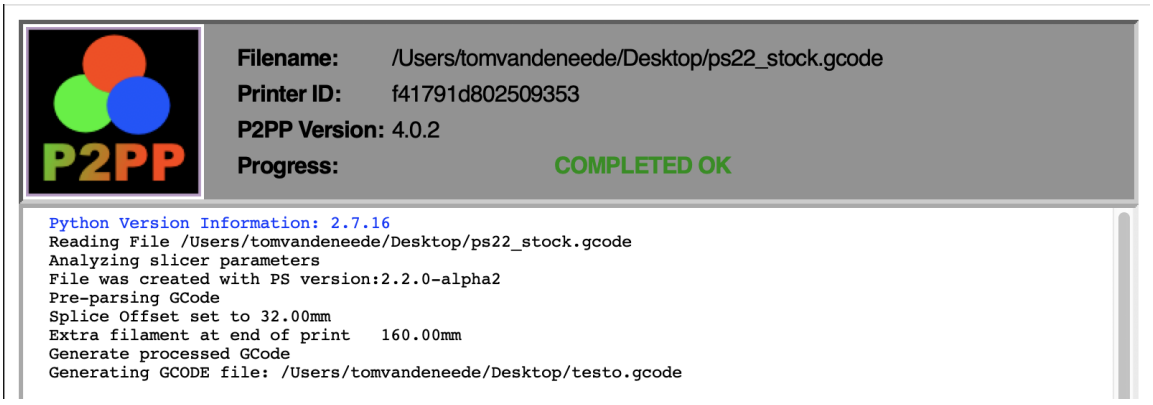
Once you have all parameters entered you can load a multi-color file in PrusaSlicer and click the export button/send to printer button… if all goes well you will get a pop-up window from P2PP

If there were warnings (like in the example below), the window will remain open (as long as the window is open PrusaSlicer will not function normally and should not be used)

You can review the errors and see what is needed to correct them. Clicking OK will return you to PrusaSlicer. If uploading was selected, the print will be uploaded to the printer.



If the processing went through without issue the window will close automatically without waiting and the PrusaSlicer will take control from there. If you have the consolewait parameter set you will get a similar window with a header confirming the correct processing



In either case the output file will contain the processed information from P2PP, even if errros have been detected.

Troubleshooting

Before reporting an issue:

- Make sure you have the latest version of P2PP running. We only support the latest master and latest development version of P2PP. Your bugs may have been solved in later versions of the tool.

If after reading all of the documentation, you should still have issue to make successful prints using P2PP, you can turn to the P2PP Community Help page on Facebook.
If you cannot find the information you are looking for in the existing topics, you can post your own question. Be thorough in your descriptions, people are there to help and the more you give them to work with the better chance you will have to get your specific issue resolved…

When reporting issues you will often be asked to provide supporting material:

- Processed GCODE file (output of P2PP script) so we can see what code is generated and if it shows any sign that could link the problem to the code
- Unprocessed GCODE file (output of PrusaSlicer without the P2PP processing). The easiest way to achieve this is to add an extra character in the output
- OctoPrint log file of the print that showed the problem

Appendix A. P2PP Parameters and default values

Name	Desc	Value
ABSOLUTEEXTRUDER	Convert file to absolute extrusion	FALSE
PALETTE3	Create MCFX files for Palette3 with up to 4 colors	N/A
PALETTE3_PRO	Create MCFX files for Palette3 with up to 8 colors	N/A
P3_PROCESSPREHEAT	Palette 3 supports preheating the extruder automatically based on the first loaded filament profile temperature	FALSE
ACCESSORYMODE_MAF	Generate MAF file (accessory mode)	FALSE
ACCESSORYMODE_MSF	Generate MSF file (accessory mode)	FALSE
AFTERSIDEWIPEGCODE	GCode line(s) to be executed **after** sidewipe sequence. Multiple AFTERSIDEWIPECODE lines can occur. They are inserted in the sequence they appear in the config block	empty
AUTOADDPURGE	Automatically add purge to meet minsplice requirements (only with fullpurge reduction and sidewipe)	FALSE
AUTOLOADINGOFFSET		0
BEDORIGINX	X-position of the origin of the bed, since 5.1.0 taken from file, can be overridden	Input file
BEDORIGINY	Y-position of the origin of the bed, since 5.1.0 taken from file, can be overridden	Input file
BEDSIZEX	X-size of the bed, since 5.1.0 taken from file, can be overridden	Input file
BEDSIZEY	Y-size of the bed, since 5.1.0 taken from file, can be overridden	Input file
BEFORESIDEWIPEGCODE	GCode line(s) to be executed **before** sidewipe sequence. Multiple BEFORESIDEWIPECODE lines can occur. They are inserted in the sequence they appear in the config block	empty
BIGBRAIN3D_BLOBSIZE	See BB3D section in this manual	40
BIGBRAIN3D_BLOBSPEED	See BB3D section in this manual	200
BIGBRAIN3D_COOLINGTIME	See BB3D section in this manual	12
BIGBRAIN3D_ENABLE	See BB3D section in this manual	FALSE
BIGBRAIN3D_FAN_OFF_PAUSE	See BB3D section in this manual	0
BIGBRAIN3D_LEFT_SIDE	See BB3D section in this manual	FALSE
BIGBRAIN3D_MOTORPOWER_HIGH	See BB3D section in this manual	450
BIGBRAIN3D_MOTORPOWER_NORMAL	See BB3D section in this manual	300
BIGBRAIN3D_NUMBER_OF_WHACKS	See BB3D section in this manual	1
BIGBRAIN3D_PRIME_BLOBS	See BB3D section in this manual	0
BIGBRAIN3D_PURGEPOSITION	See BB3D section in this manual	256.5
BIGBRAIN3D_PURGEYPOSITION	See BB3D section in this manual	Empty
CHECKVERSION	Check online for new version	FALSE
CONSOLEWAIT	Wait for user input at end of processing even if there are no errors	FALSE

EXTRAENDFILAMENT	Amount of extra filament added at the end of the print in the last used color (in mm)	150
EXTRUSIONMULTIPLIERCORRECTION	Sets the correction factor applied to the extrusions used in the gcode file.	1
FULLPURGEREDUCTION	Engages full purge reduction	FALSE
IGNOREWARNINGS	Closes P2PP after processing even if there were warnings	FALSE
LINEARPINGLENGTH	Sets the length between pings programmed in the file	350
MINSPLICE	Minimal splice length	70
MINSTARTSPLICE	Minimal first splice length	100
P+LOADINGOFFSET	Accessory mode parameter for Palette+	Empty
P+PPM	Accessory mode parameter for Palette+	Empty
PRINTERPROFILE	Printer profile string	50325050494e464f
PROFILETYPEOVERRIDE	See splicing Algorigthm	Empty
PURGETOPSPEED	Set Speed limit during purging	empty
PURGETOWERDELTA	Engages power delta	FALSE
SAVEUNPROCESSED	Save a copy of the unprocessed file to disk (useful for debugging)	FALSE
SIDEWIPECORRECTION	Correction factor applied to the filament extruded during side wipe	1
SIDEWIPELOC	See sidewiping section	empty
SIDEWIPEMAXY	See sidewiping section	175
SIDEWIPEMINY	See sidewiping section	25
SPLICEOFFSET	Defines the extra length in mm added to the first splice	30
TEMPERATURECONTROL	Enables active temp control by introducing controlled temperature waits during the print to allow for cool down/heat up matching the higher/lower temp requirements for the print	FALSE
WIPEFEEDRATE	Defines the default federate used for wiping	3000