

BFB Axon software manual

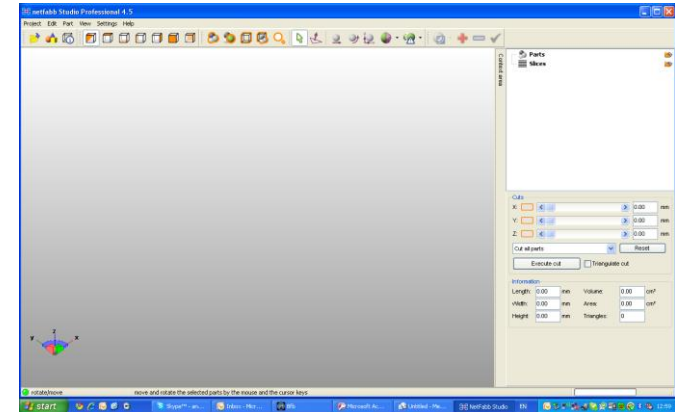


Contents

Install BFB Axon on your computer from the website for the latest version:
www.bitsfrombytes.com > Downloads> Software. (Or from the SD card if supplied).

- If you are using Vista or windows 7, you must install the program under “run as administrator”.
- If you are upgrading from a previous version, please uninstall the previous program through add/remove programs in the control panel.

Download Netfabb studio from <http://www.netfabb.com/download.php>

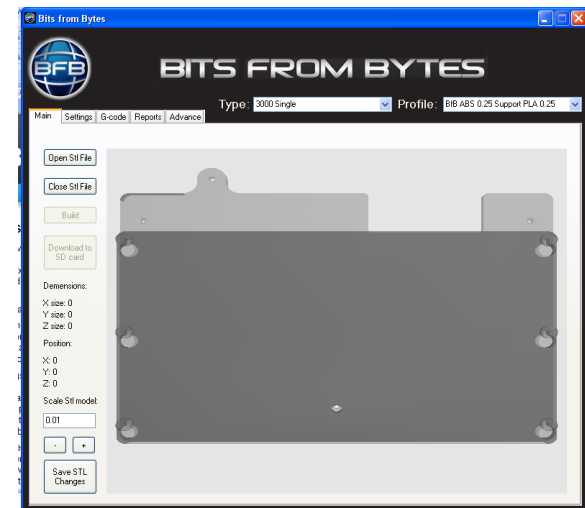


Preparing your STL file with Netfabb Studio

- Netfabb basic settings and operation page 2
- Align the face you want to print on the bed page 3
- Fix the STL file page 4 - 6
- Export your prepared file ready for printing page 7

Processing your STL file with BFB Axon software

- BFB Axon overview page 8
- Settings page 9 - 13
- G-code page 14
- Reports page 15
- Advanced page 16
- Open/Close your STL file page 17
- Rotate/Move your STL file page 18
- Scale your STL file page 19
- Select a profile for printing page 20
- Build your part page 21



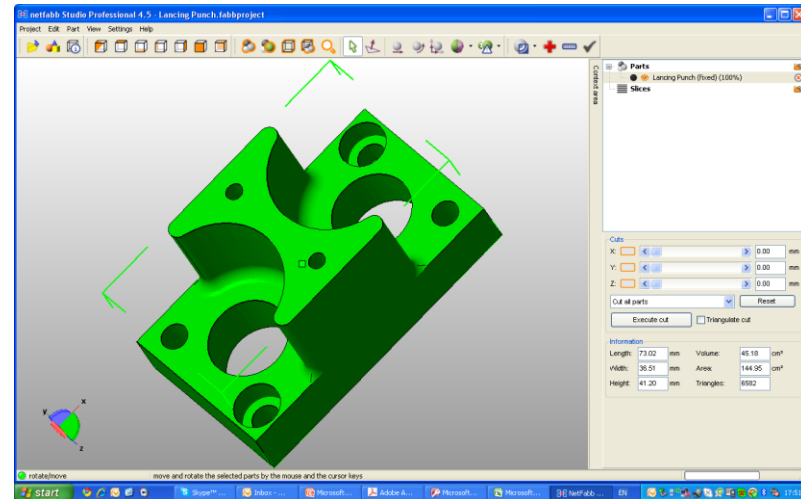
BFB Axon software manual



Preparing STL files for processing

Basic settings and operation

- Open your file using the **open file** icon, choosing your file from the dialog box and clicking OK
- To rotate the object click and hold the right mouse button and rotate the part.



Open file

Snap view tools

Flexible view and zoom tools

Select tool

Move part tool

Scale tool

Repair tool

Align face tool

Rotate tool

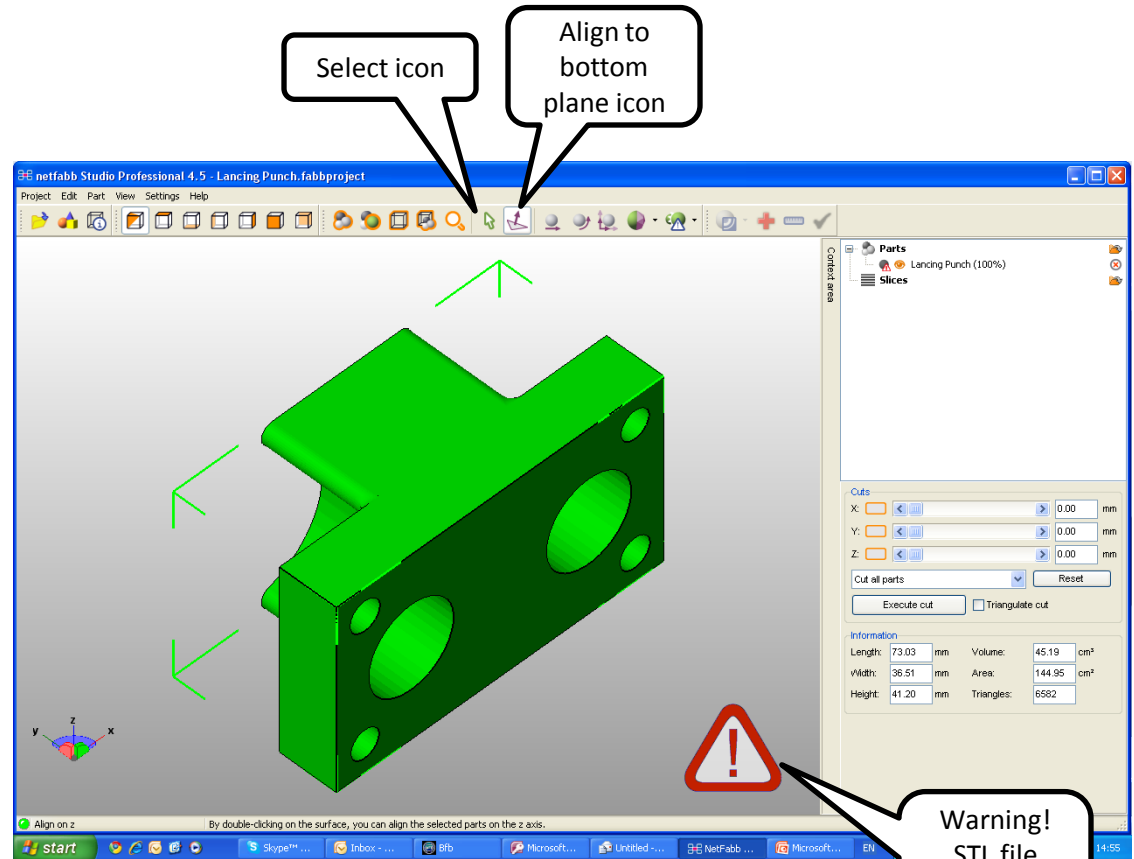
BFB Axon software manual



Preparing STL files for processing – Aligning a face to the print bed

Aligning a face to the print bed

- Open your file using the **open file** icon, choosing your file from the dialog box and clicking OK
- To scale the file it must be selected, this is shown when the image turns green
- If it is not selected or green, click the **select** icon on the top of the tool bar and then click the file
- With the file selected, click the **align to bottom plane** icon on the tool bar at the top of the page
- Simply double click the face you wish to place on the print bed and the model will automatically re-orientate itself
- Make sure you re select the select icon on the top tool bar to carry on with other functions

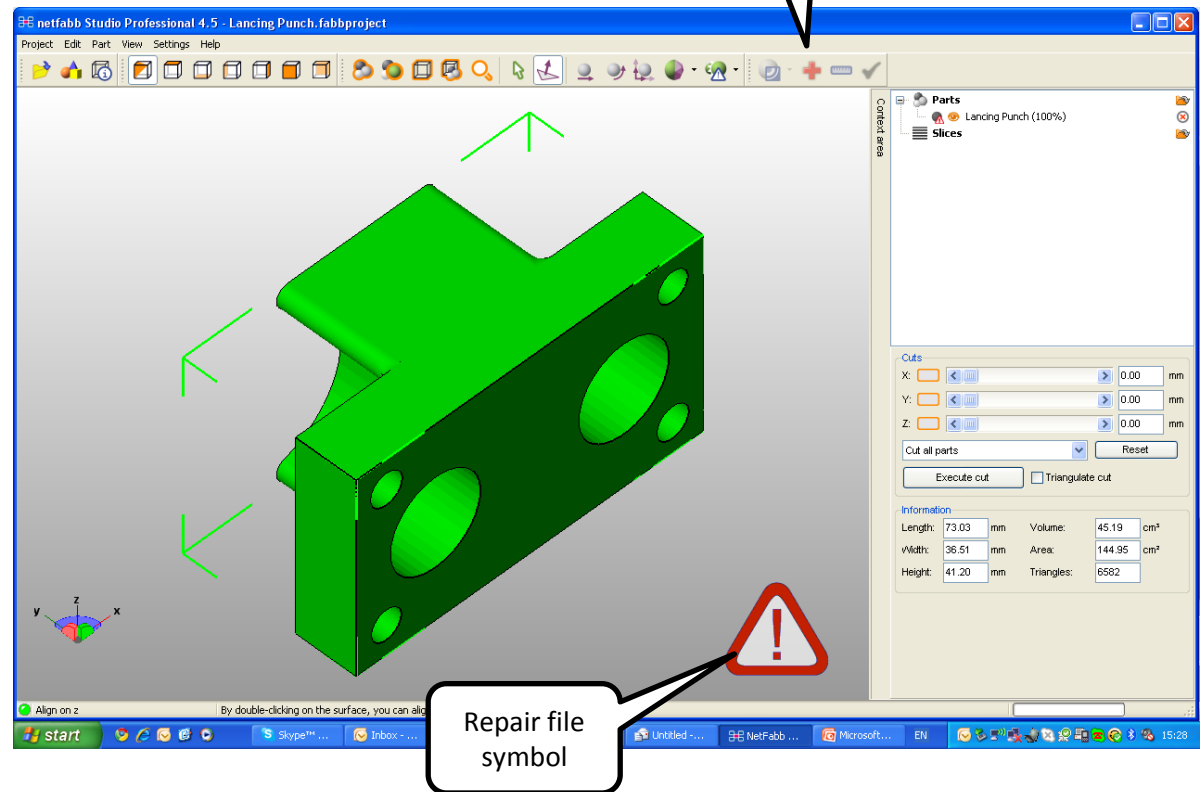




Preparing STL files for processing – Fixing the STL file

Fixing your STL file

- Once you have carried out all the preparation of your STL file and if there is a red warning flag in the bottom right corner, you will need to fix your STL file.
- If you don't have a file already open, Open your file using the **open file** icon, choosing your file from the dialog box and clicking OK
- If the file requires fixing click the repair button in the top tool bar

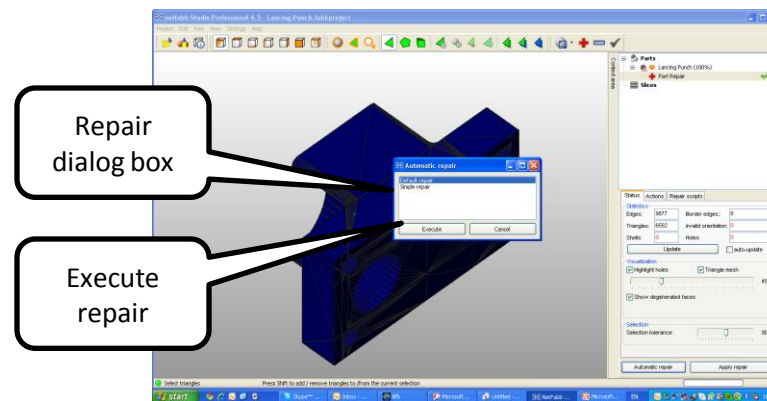
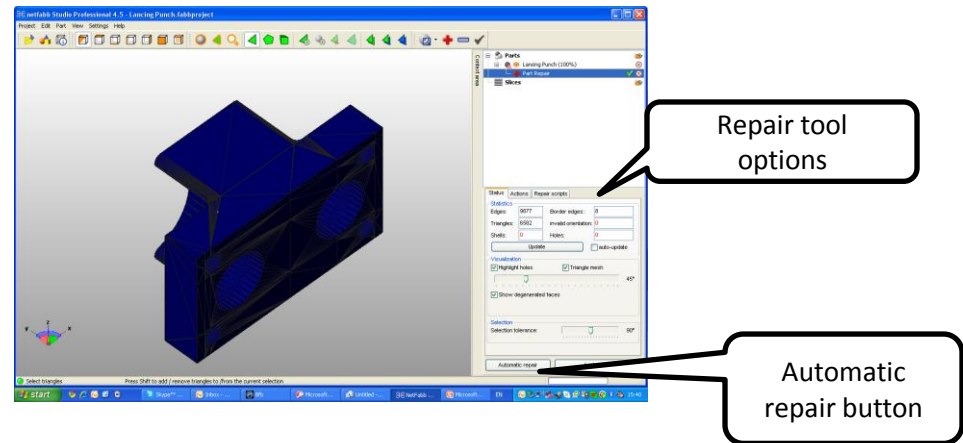




Preparing STL files for processing – Fixing the STL file

Fixing your STL file

- The file will turn blue and the righthand side of the screen will change to file fixing mode
- You have the ability to perform a manual repair or an automatic repair. We suggest you just perform the automatic repair.
- Click the automatic repair button. The repair dialog box will appear. Select the repair you wish to carry out. Click the execute button

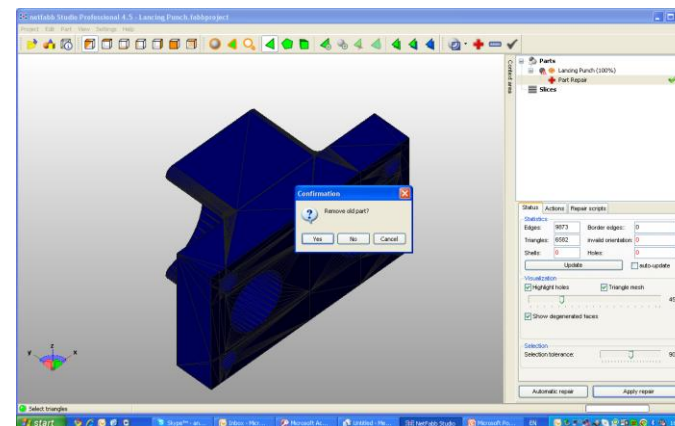
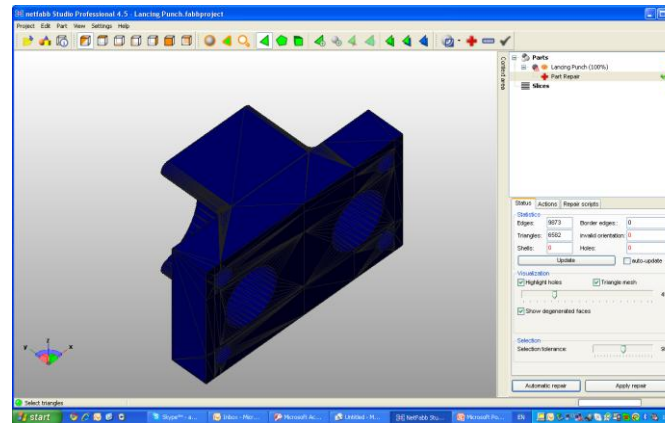




Preparing STL files for processing – Fixing the STL file

Fixing your STL file

- To finish the fix process click the apply repair
- Choose yes to remove old part
- Your file will return to its green colour



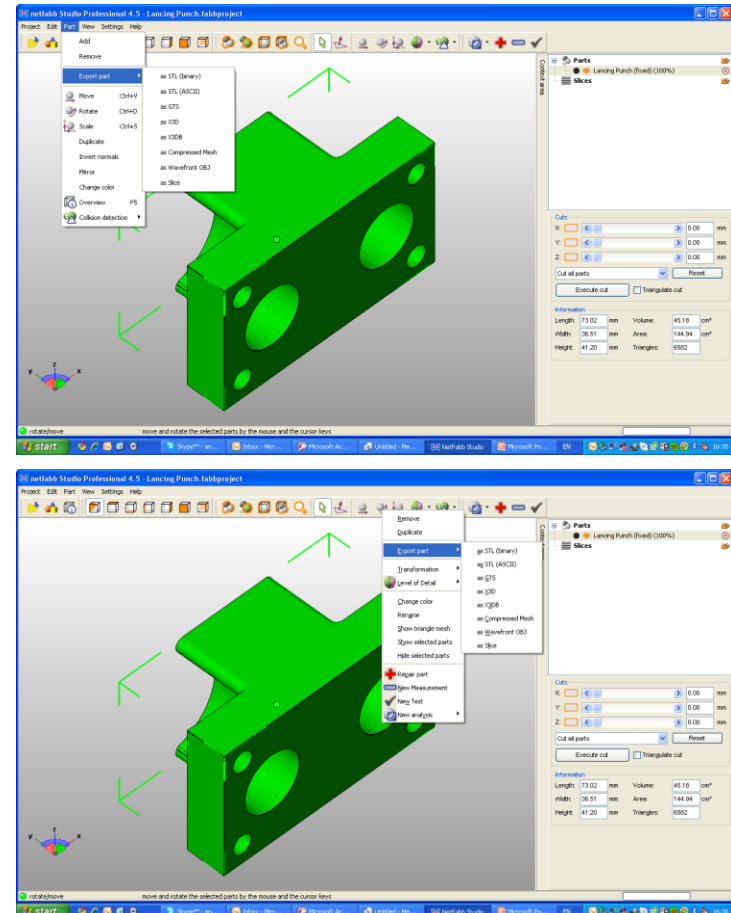
BFB Axon software manual



Preparing STL files for processing – Exporting the prepared STL file

Exporting your STL file

- To export your prepared file you can either right click the selected part or choose export part from the part menu.
- Choose STL Binary in the file option list.
- For the BFB software the best STL format to export out to is Binary
- Save your prepared file in the directory of your choice.
- You are now ready to bring the prepared STL file into the BFB conversion software



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Processing STL files

BFB Axon overview

Main tab allows you to:

- Open and close STL files
- Rotate your STL file in the 3d viewer
- Reposition your STL file on the print bed
- Scale your STL file
- Process the build of your STL file

Settings tab allows you to:

- Set extruder temperatures and fans
- Fill and object settings
- Support settings
- Cost settings
- Calibration settings

G-code tab allows you to:

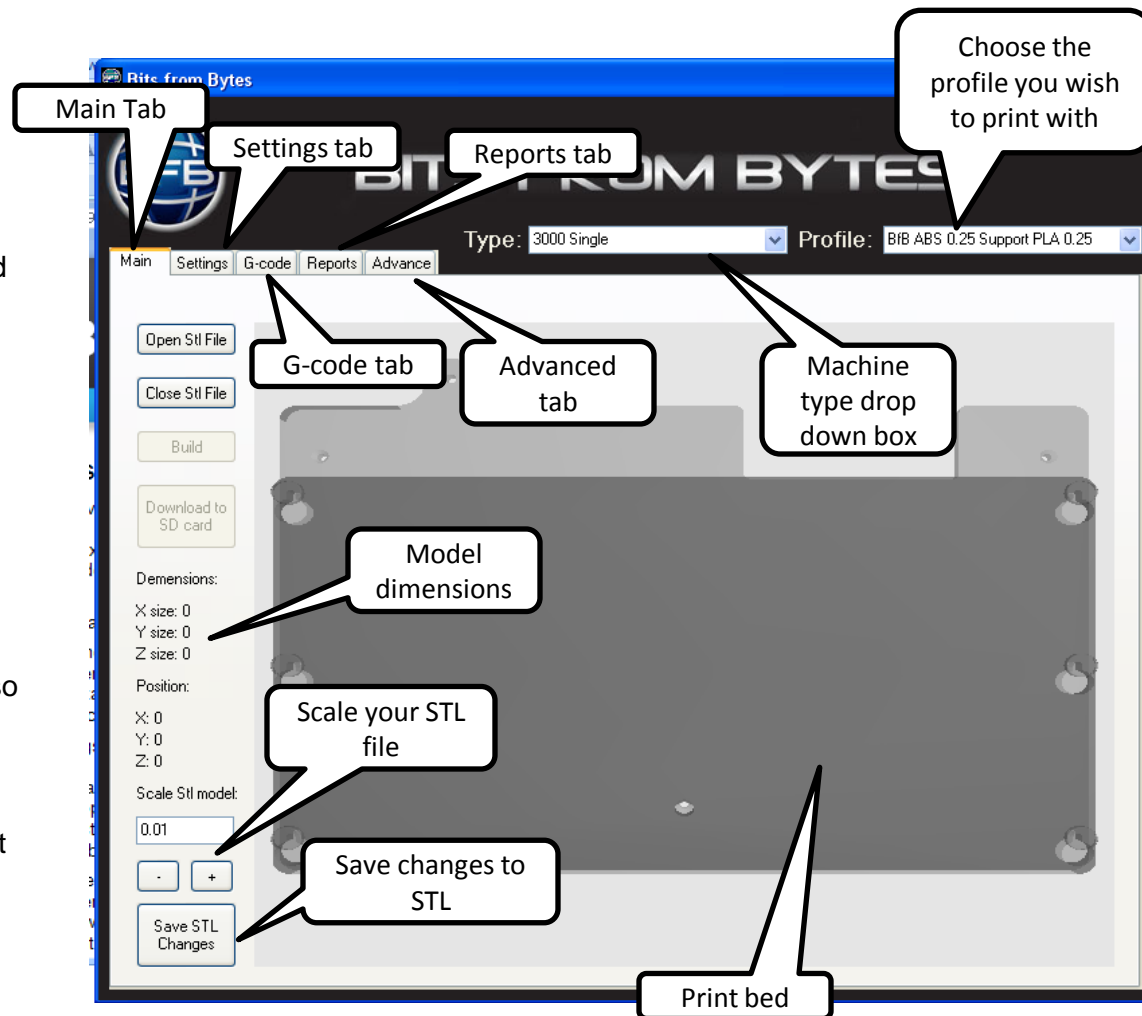
- Open and close G-code files
- View your G-code layer by layer and also rotate in 3d

Reports tab allows you to:

- View the progress of your build
- See the approximate build time and cost

Advanced tab

- Go to advanced profile settings
- Program information



BFB Axon software manual



Processing STL files

Settings

Temperature settings

- Raft – Sets the print temperature of the raft
- Work – sets the print temperature of the main model material
- Support – sets the print temperature of the support material.
- Standby temperatures – the temperature the extruders are held at when not printing, if you hold them too high you may risk ouse of material from the extruder head
- Use fans – turns the fans on and off and is used for certain materials that need cooling quickly to improve the quality of the print.

Bits from Bytes

BITs FROM BYTES

Profile: BfB 3000 PLA 0.25Z

Main Settings G-code Reports

Temperatures

Raft temperature: °C: 195
Work temperature: °C: 200
Support temperature: °C: 180
Standby temp Extruder1: °C: 120
Standby temp Extruder2: °C: 120

Use Fan for 1st Extruder
 Use Fan for 2nd Extruder
 Use Fan for 3rd Extruder

Support

Support density: %: 50
Support minimum angle: °: 60

Use Ex2 for support
 Use Ex2 for raft
 Support Cross Hatch
 Easy remove Raft

Support option:
 None
 Empty layers only
 Everywhere
 Exterior Only

Object settings

Fill density: %: 30
Solid surface Layers: 3
Shells: 1

Fill Pattern:
 Grid Hexagonal
 Grid Rectangular
 Line

Material Cost

ABS/Kg: 45.0
PLA/Kg: 45.0
Currency: £
Add Currency: Add

Calibration

Head offset X: mm: -44.3
Head offset Y: mm: 0.0

Make calibration file

Delete Profile Save Changes Add Profile

BFB Axon software manual



Processing STL files

Settings

Object settings

- Fill density – Sets the density of the fill within the model. The less the fill the shorter the print time, the more the fill the longer the print time.
- Solid surface layers – number of solid layers on surfaces
- Extra Shells – number of surfaces
- Fill Pattern – hexangonal grid pattern will give Rectangular grid will give Line fill will speed up the print.

The screenshot displays the 'Settings' tab of the 'Bits From Bytes' software. The interface is organized into several sections:

- Temperatures:** Raft temperature: 195°C, Work temperature: 200°C, Support temperature: 180°C, Standby temp Extruder1: 120°C, Standby temp Extruder2: 120°C. Includes checkboxes for 'Use Fan for 1st Extruder', 'Use Fan for 2nd Extruder', and 'Use Fan for 3rd Extruder'.
- Support:** Support density: 50%, Support minimum angle: 60°. Includes checkboxes for 'Use Ex2 for support', 'Use Ex2 for raft', 'Support Cross Hatch', and 'Easy remove Raft'. A 'Support option' section has radio buttons for 'None', 'Empty layers only', 'Everywhere', and 'Exterior Only'.
- Object settings:** Fill density: 30%, Solid surface Layers: 3, Shells: 1. The 'Fill Pattern' section has radio buttons for 'Grid Hexangonal', 'Grid Rectangular', and 'Line' (which is selected).
- Material Cost:** ABS/Kg: 45.0, PLA/Kg: 45.0, Currency: £. Includes an 'Add Currency' button.
- Calibration:** Head offset X: -44.3 mm, Head offset Y: 0.0 mm. Includes a 'Make calibration file' button.

At the bottom of the settings panel, there are buttons for 'Delete Profile', 'Save Changes', and 'Add Profile'.

BFB Axon software manual



Processing STL files

Settings

Support settings

- Support density – set the density of the support you are printing
- Support minimum angle– the angle of the model geometry off vertical that the software will make support.
- Support options –
- Extruder 2 for support – Use the 2nd extruder for support.
- Extruder 2 for raft – Use the 2nd extruder for the raft
- Support type – The type of support pattern
- Easy remove raft – A pillar raft for easier removal

The screenshot shows the 'Settings' tab of the 'Bits From Bytes' software. The interface is organized into several panels:

- Temperatures:** Raft temperature: 195°C, Work temperature: 200°C, Support temperature: 180°C, Standby temp Extruder1: 120°C, Standby temp Extruder2: 120°C. Checkboxes for 'Use Fan for 1st Extruder', 'Use Fan for 2nd Extruder', and 'Use Fan for 3rd Extruder' are present.
- Support:** Support density: 50, Support minimum angle: 60. Checkboxes for 'Use Ex2 for support', 'Use Ex2 for raft', 'Support Cross Hatch', and 'Easy remove Raft'. A 'Support option' section has radio buttons for 'None', 'Empty layers only', 'Everywhere', and 'Exterior Only'.
- Object settings:** Fill density: 30, Solid surface Layers: 3, Shells: 1. A 'Fill Pattern' section has radio buttons for 'Grid Hexagonal', 'Grid Rectangular', and 'Line'.
- Material Cost:** ABS/Kg: 45.0, PLA/Kg: 45.0, Currency: £. An 'Add Currency' button is visible.
- Calibration:** Head offset X: -44.3 mm, Head offset Y: 0.0 mm. A 'Make calibration file' button is present.

At the bottom of the window, there are buttons for 'Delete Profile', 'Save Changes', and 'Add Profile'. The top right shows the current profile: 'Profile: BFB 3000 PLA 0.25Z'.

BFB Axon software manual



Processing STL files

Settings

Cost settings

- ABS/Kg – Input the cost of the ABS
- PLA/Kg – Input the cost of the PLA
- Currency – Allows you to reflect local currency's
- Add currency – Allows you to add local currency if your particular currency does not appear in the drop down list. To add a currency you have to click the add button.

The screenshot shows the 'Settings' tab of the 'Bits From Bytes' software. The window title is 'Bits from Bytes'. The main header displays the BFB logo and the text 'BITS FROM BYTES'. The current profile is 'BfB 3000 PLA 0.25Z'. The interface is divided into several sections:

- Temperatures:** Raft temperature: 195°C, Work temperature: 200°C, Support temperature: 180°C, Standby temp Extruder1: 120°C, Standby temp Extruder2: 120°C. Checkboxes for 'Use Fan for 1st Extruder', 'Use Fan for 2nd Extruder', and 'Use Fan for 3rd Extruder' are present.
- Support:** Support density: 50%, Support minimum angle: 60°. Checkboxes for 'Use Ex2 for support', 'Use Ex2 for raft', 'Support Cross Hatch', and 'Easy remove Raft'. A 'Support option' section includes radio buttons for 'None', 'Empty layers only', 'Everywhere', and 'Exterior Only'.
- Object settings:** Fill density: 30%, Solid surface Layers: 3, Shells: 1. 'Fill Pattern' options: 'Grid Hexagonal', 'Grid Rectangular', and 'Line' (selected).
- Material Cost:** ABS/Kg: 45.0, PLA/Kg: 45.0, Currency: £. An 'Add Currency' button is available.
- Calibration:** Head offset X: -44.3 mm, Head offset Y: 0.0 mm. A 'Make calibration file' button is present.

Buttons at the bottom include 'Delete Profile', 'Save Changes', and 'Add Profile'.

BFB Axon software manual



Processing STL files

Settings

Calibration settings

- Input x axis offset – Input your x axis off set here after you have printed and measured the calibration print. The standard drawn offset is set as the default value you will see.
- Input y axis offset – Input your y axis off set here after you have printed and measured the calibration print. The standard drawn offset is set as the default value you will see.
- Make calibration file – Click the button and choose the file you wish to print

The screenshot displays the 'Settings' tab of the Bits From Bytes software. The interface is organized into several sections:

- Navigation:** Main, Settings (active), G-code, Reports.
- Profile:** BFB 3000 PLA 0.25Z
- Temperatures:**
 - Raft temperature: 195 °C
 - Work temperature: 200 °C
 - Support temperature: 180 °C
 - Standby temp Extruder1: 120 °C
 - Standby temp Extruder2: 120 °C
 - Use Fan for 1st Extruder:
 - Use Fan for 2nd Extruder:
 - Use Fan for 3rd Extruder:
- Support:**
 - Support density: 50 %
 - Support minimum angle: 60 °
 - Support option: None, Empty layers only, Everywhere, Exterior Only
 - Use Ex2 for support:
 - Use Ex2 for raft:
 - Support Cross Hatch:
 - Easy remove Raft:
- Object settings:**
 - Fill density: 30 %
 - Solid surface Layers: 3
 - Shells: 1
 - Fill Pattern: Grid Hexagonal, Grid Rectangular, Line
- Material Cost:**
 - ABS/Kg: 45.0
 - PLA/Kg: 45.0
 - Currency: £
 - Add Currency: Add
- Calibration:**
 - Head offset X: -44.3 mm
 - Head offset Y: 0.0 mm
 - Make calibration file button

Buttons at the bottom: Delete Profile, Save Changes, Add Profile.



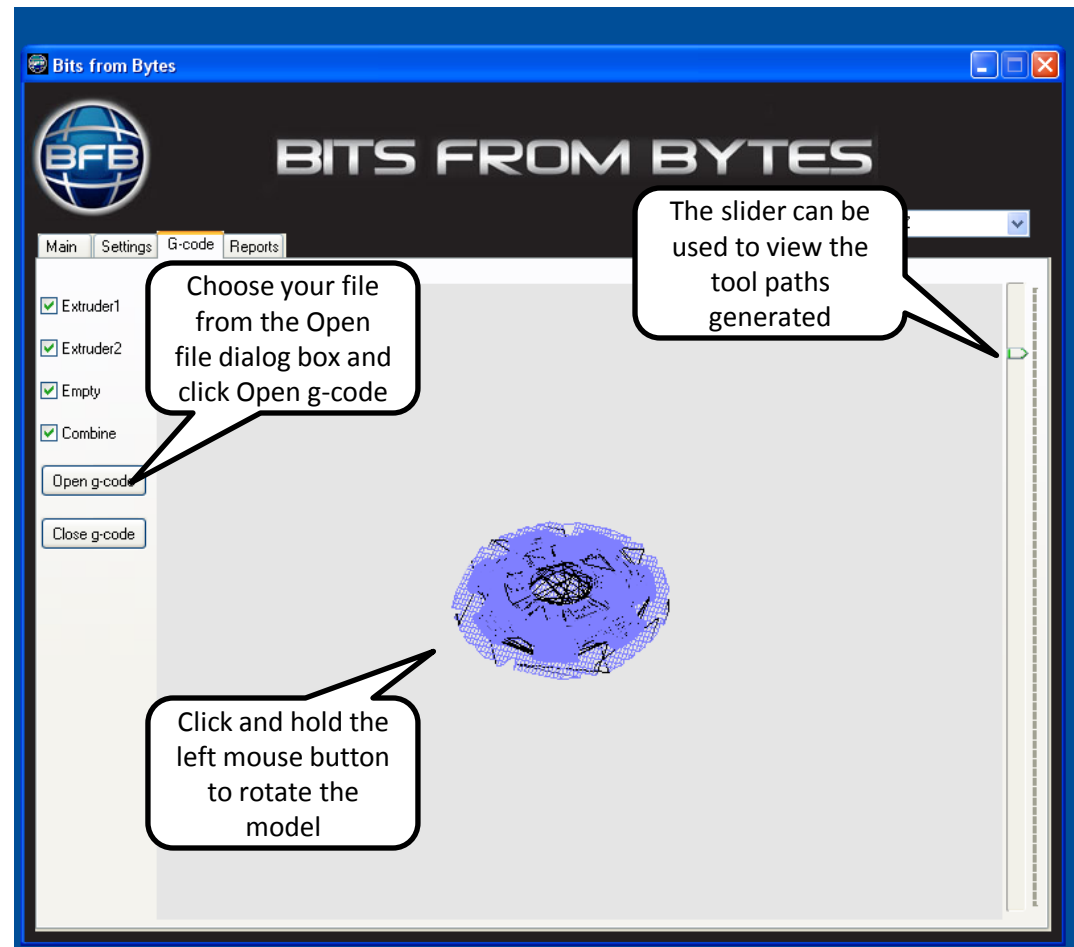
Processing STL files

G-code

The G-code screen allows viewing of the G-code you have just processed or any G-code files previously processed

Using the slider on the right hand side of the screen you are able scroll up and down the build, looking at the tool paths for each layer.

You are also able to rotate the object by clicking and holding the left mouse button, move the object around the screen by clicking and holding the right mouse button and zoom in and out on the object by rolling the mouse wheel.

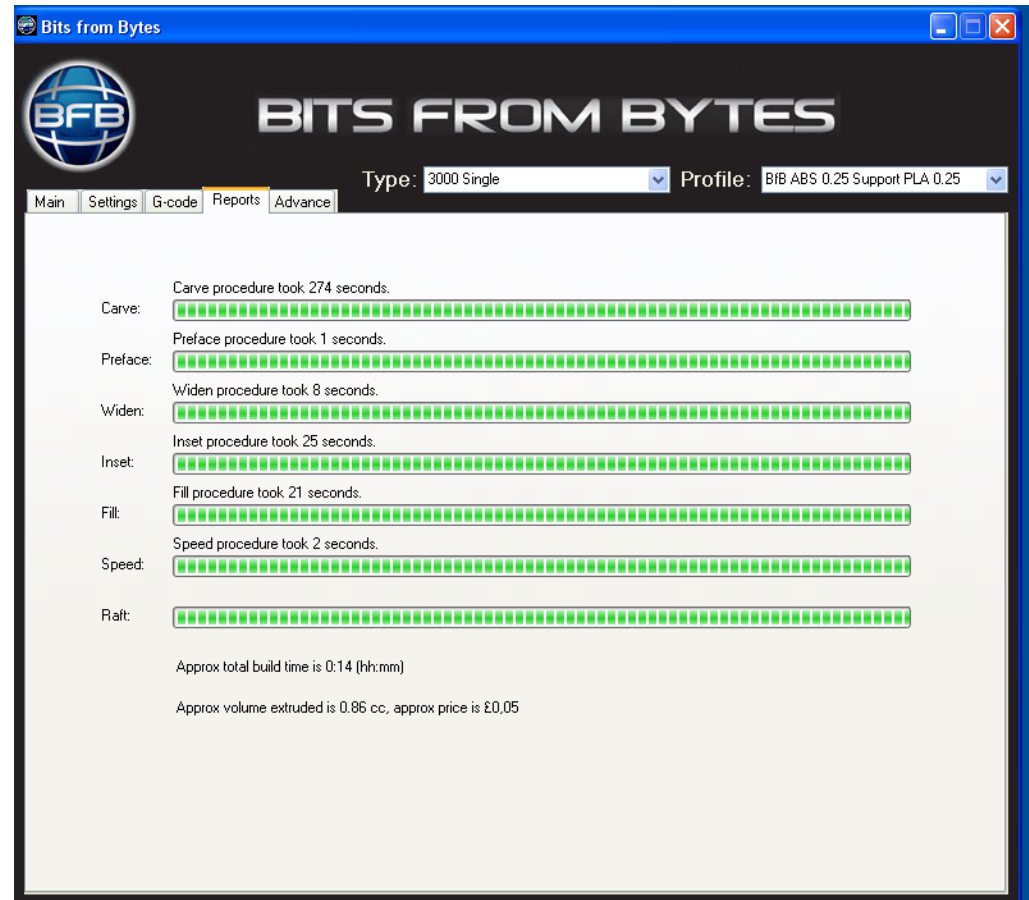




Processing STL files

Reports

The reports screen shows the progress of the build and also after the build has finished the approximate build time and cost.



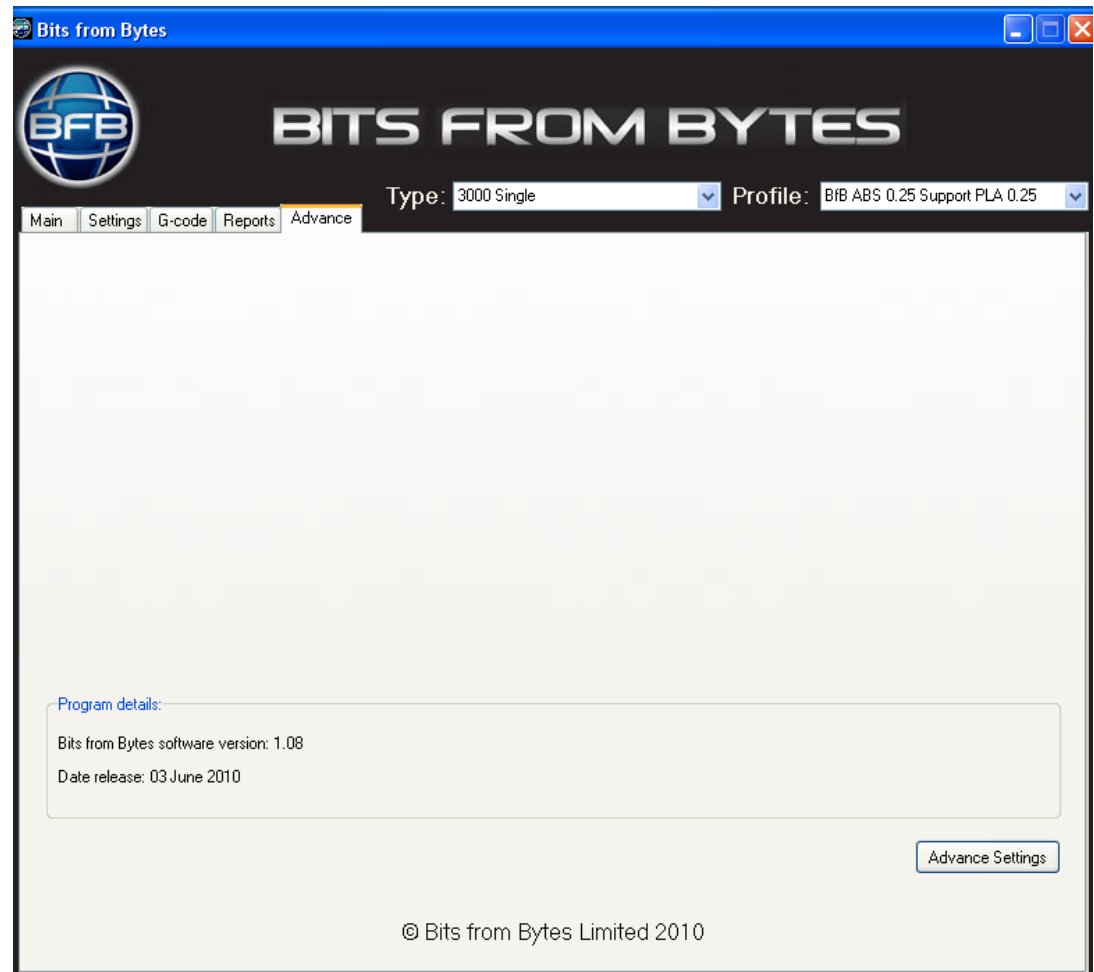
BFB Axon software manual



Processing STL files

Advanced

The Advanced screen gives the program information and allows access to the advanced profile settings through Skeinforge



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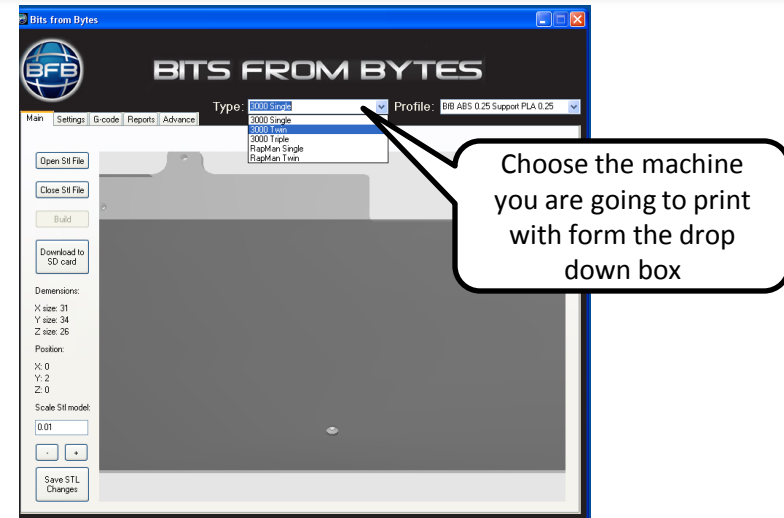
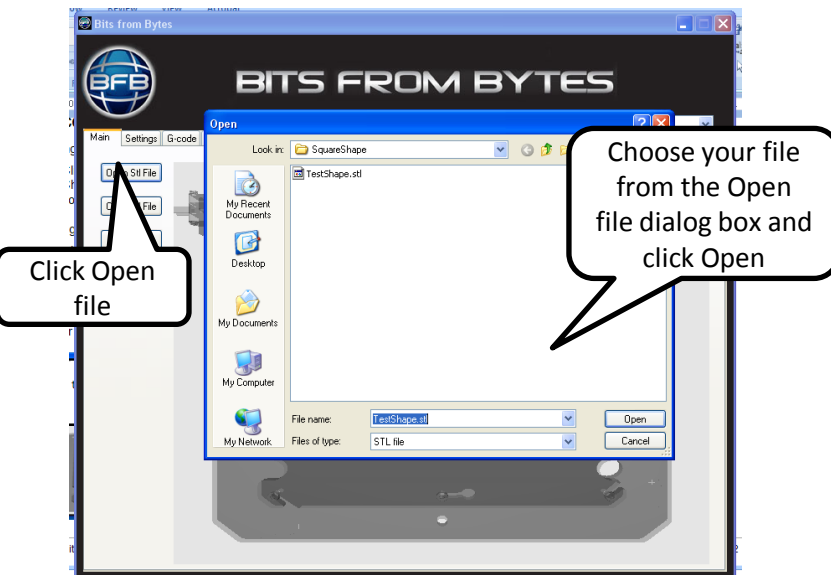
Processing STL files

Opening an STL file

- Choose the machine you are printing on from the drop down box.
- Click on Open STL file
- Choose your file from the open file dialog box

Closing an STL file

- Click on Close STL file



BFB Axon software manual



Processing STL files

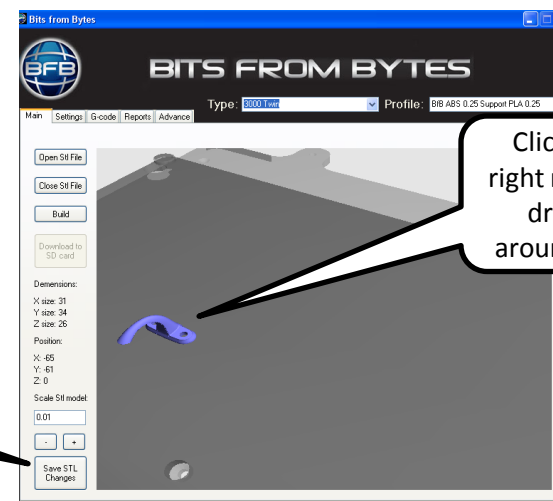
Rotate your STL file

Rotating the bed and your STL file

- Click and hold the left mouse button and rotate the model as required
- Be aware if you rotate the bed more than 180 degrees the view will rotate in the opposite direction to the mouse.
- Zoom in and out using the wheel on your mouse

Moving your STL file on the print bed

- Click and hold the right mouse button and drag the model as required around the bed
- Once you have positioned the model where you want you must save the changes using the “Save STL” button



When you have positioned the model save STL file in its new position



Processing STL files

Scale your STL

- Input the value you wish to scale your STL file –
 - 2 = scale up 200%
 - 1 = scale up or down 100%
 - 0.5 = scale up or down 50%
 - 0.1 = scale up or down 10%

There is a limit to which you are able to scale downwards.

- The model dimensions on the left hand side will change according to the new size
- If you scale up past the specific machines print capabilities a warning message will appear.
- Once you have finished scaling your file, you must save your STL changes. Your changed file will be saved with the same file name plus “rebuild”

The screenshot shows the 'Bits from Bytes' software interface. On the left, a panel displays the current model dimensions and position. A callout box labeled 'Model Dimensions' points to this panel. The dimensions are: X size: 31, Y size: 34, Z size: 26. The position is: X: -65, Y: -61, Z: 0. Below the dimensions, there is a 'Scale STL model' section with a text input field containing '1', and minus and plus buttons. A callout box labeled '- Scales down + Scale up' points to these buttons. Below the input field is a 'Save STL Changes' button, with a callout box labeled 'Save changes to the STL file. You must save all changes you make' pointing to it. The main window shows a 3D model of a part. A callout box labeled 'Input the scales value you want to use' points to the 'Scale STL model' input field. The software interface also includes a menu bar (Main, Settings, G-code, Reports, Advance), a 'Type' dropdown set to '3000 Twin', and a 'Profile' dropdown set to 'BIB ABS 0.25 Support PLA 0.25'. Buttons for 'Open STL File', 'Close STL File', 'Build', 'Download to SD card', and 'Save STL Changes' are visible.



Processing STL files

Select a profile for printing

Once you have finished scaling and positioning your STL file, you now must choose the print profile you wish to use and make sure you have the correct machine type.

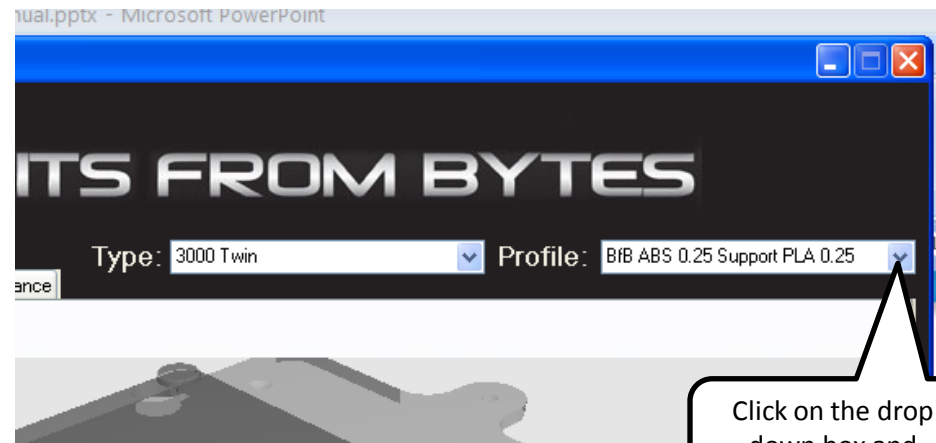
Our standard profiles always start with BfB and these are not able to be deleted. You are able to save changes if you change any of the variables in the settings tab.

The profiles are critical to the print quality and are constantly being developed and improved by us. Once we release new profile settings they will be sent in an executable format to allow quick and easy upgrade of the BfB profiles.

You are able to create your own depending on the material or geometry you are looking to print.

When creating your own profiles you will need to access advanced settings from the advanced tab to allow full control over the print profile.

To select a profile click on the drop down box and choose the profile you wish to print with.



Click on the drop down box and choose your profile

BFB Axon software manual



Processing STL files

Convert your STL file to G-code

Once you have completed the following tasks:-

- Prepared your STL file in Netfabb
- Completed any changes and saved them
- Chosen your profile and machine type
- Made any setting changes

You are ready to turn your STL file into the G-Code format needed to run BFB's printers.

- Click on the build button.
- The screen will change to the screen tab and you will see the various progress bars processing the file.
- Once the build process has finished the screen will change to the G Code viewer allowing you to see the tool paths that have been generated.
- Select the main tab and save you G-Code file to your SD card or a location on your computer.

