



USER MANUAL





DEAR VALUED CUSTOMER,

Thank you for purchasing the Leapfrog Bolt Pro 3D Printer.

Please take the time to read through this manual as it was designed to help you get familiar with your new printer and get you on your way to creating great looking 3D prints.

We have an eager and experienced Technical Support Team standing by to assist you with any questions you may have. If you are new to 3D printing we have great online courses these can be found on our website's [Learn](#) tab. Our Support Team works best through our ticketing system and regularly updated solution articles, both found on our website's [Support](#) tab.

We hope that you enjoy your new Bolt Pro 3D printer and look forward to providing assistance in any way we can.

Sincerely,

Your Leapfrog Customer Support Team

[CONTACT INFORMATION](#)

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Support	support@lpfrg.com +31 852 08 08 25
Sales	sales@lpfrg.com +31 172 50 36 24

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1 USEFUL INFORMATION

We would like to provide you with some useful information.

1.1 [PURCHASE INVOICE AND WARRANTY](#)

We would like to kindly ask you to make sure that you keep your *original purchasing invoice* provided by Leapfrog or one of our distributors. This invoice helps to verify the warranty of the printer, and it allows us to match it with our records to confirm authenticity of purchase. Please note that consumables are not within the standard warranty.

1.2 [SUPPORT INFORMATION](#)

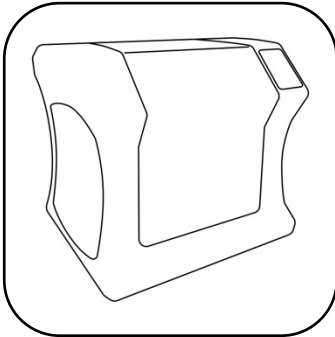
Keep in mind also that we have a Technical Support Team standing by to assist you with any questions you may have. If you are new to 3D printing, do not hesitate to ask for any support.

Our Support Team works best through our ticketing system and regularly updated solution articles, both found on our website's *Support* tab. This will direct you to support.lpfrg.com. There are a lot of solutions already available so your solution might already be there.

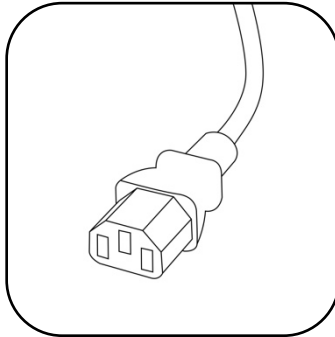
If your solution is not there, then creating a support ticket is the quickest means to get help. By clicking new support ticket, you will create a personal communication channel between you and our support team. They will help resolve your problem as fast and efficient as possible.

1.3 [WHAT IS IN THE BOX](#)

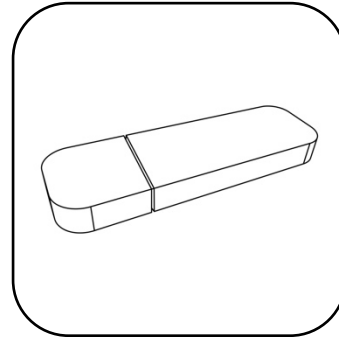
Bolt Pro Pro 3D Printer



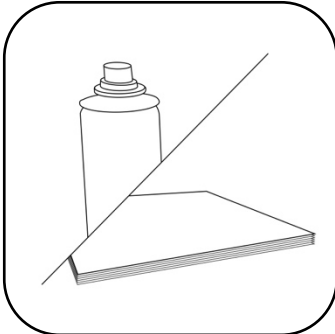
Power cable



USB stick



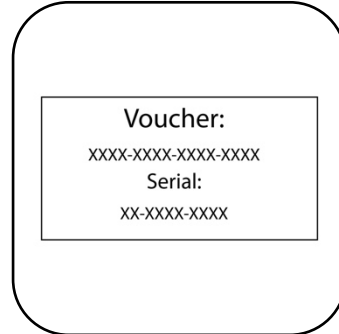
Bed adherence



Safety guide



Software Voucher*



*You may receive the software voucher electronically

1.4 [VIDEO GUIDES & TUTORIALS](#)

To get your new printer up and running we have produced a series of short [video guides & tutorials](#) covering the following topics:

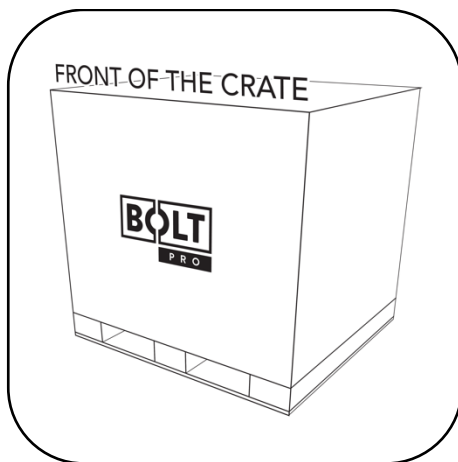
- 1) [Unboxing](#)
- 2) [Calibrate](#)
- 3) [First Print](#)
- 4) [Remote Access](#)
- 5) [Soluble Support](#)
- 6) [Flexible Material](#)
- 7) [Swapping Filaments](#)
- 8) [Swapping Hot Ends](#)

1.5 [UNBOXING THE PRINTER](#)

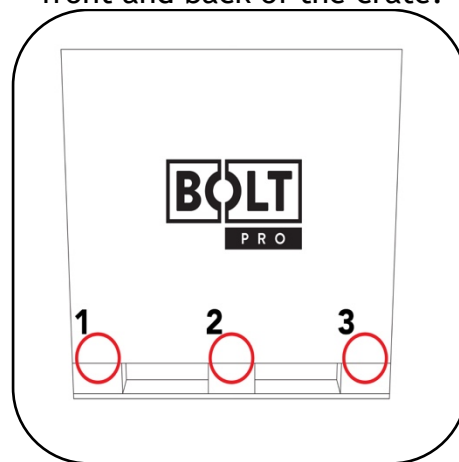
Before beginning to unbox the printer please check the shipping create for any signs of damage.

It is important to carefully unbox the printer according to the instructions. You will require two people for this task.

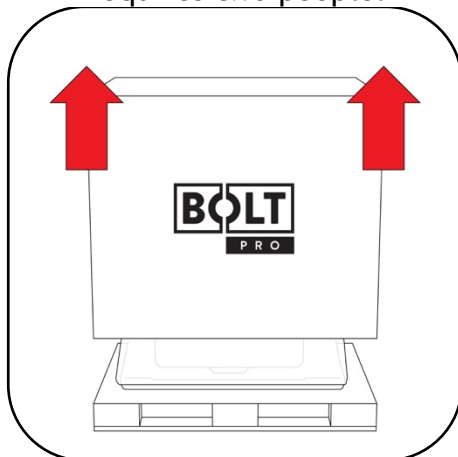
Check create for any signs of damage.



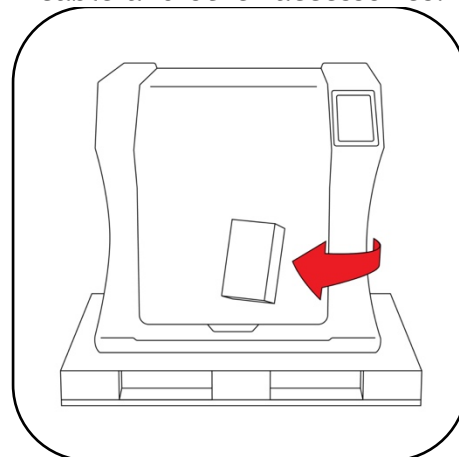
Screw holes are indicated with arrows. Remove a total of 6 screws from the front and back of the crate.



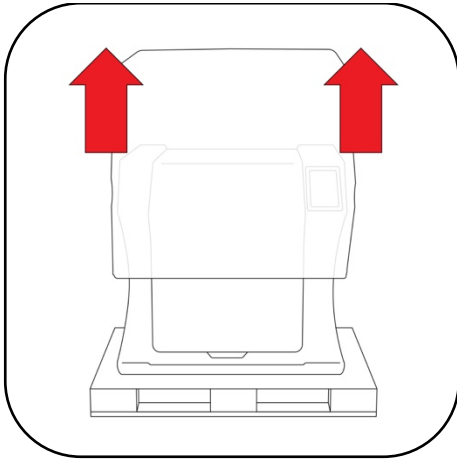
Lift the top of the box upwards this requires two people.



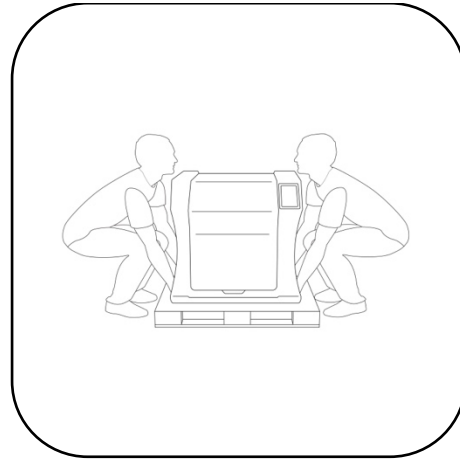
Remove the box containing the power cable and other accessories.



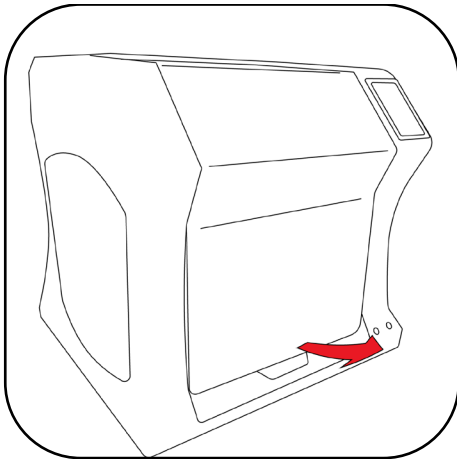
Remove the cover protection on the outside of the Bolt Pro.



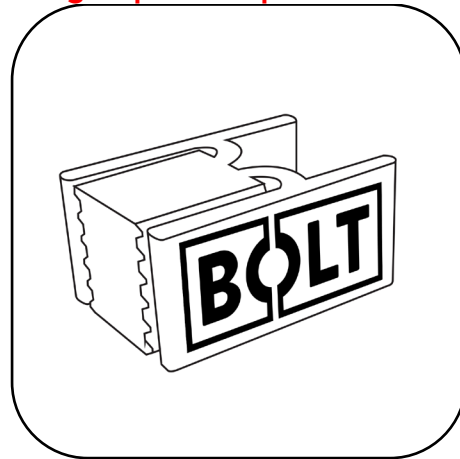
Place the Bolt Pro securely on a table or workbench.



Open the door

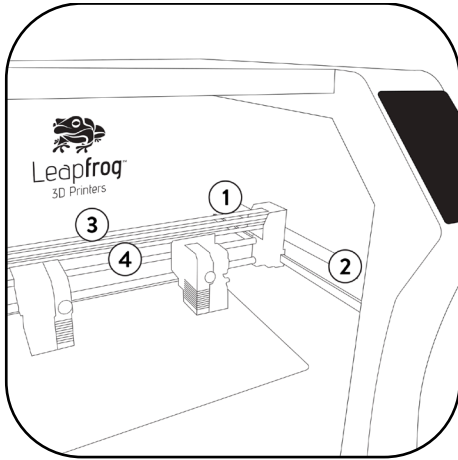


There are four transportation clips on the inside of the printer.
These need to be removed prior to printing to prevent possible damage.



2 clips can be found on the side of the Bolt Pro Pro and 2 clips can be found in the middle of the Bolt Pro Pro on the belt.

Get the power cable and plug this in the back of the printer and plug the other end in a grounded (!) wall outlet.



Remove any remaining protective film from the interior & exterior of the printer.

CONGRATULATIONS!

You have now successfully unpacked your Bolt Pro 3D Printer!

If you have not already watched the [tutorial videos](#) please do so now.

Alternatively, follow the instructions from the Quick Start Guide or shown on the User Interface, to start you first 3D print!

1.6 [ELECTRIC POWER CORD COMPATIBILITY](#)

Please check the power cord that came with the printer to see if the plug matches the electrical wall outlet that your country typically uses. The Bolt Pro has a power supply unit that is switched-mode capable - meaning it will automatically switch between allowed voltage input between 100 volts and 230 volts. However, make sure that the correct power chord has been supplied along with your printer.

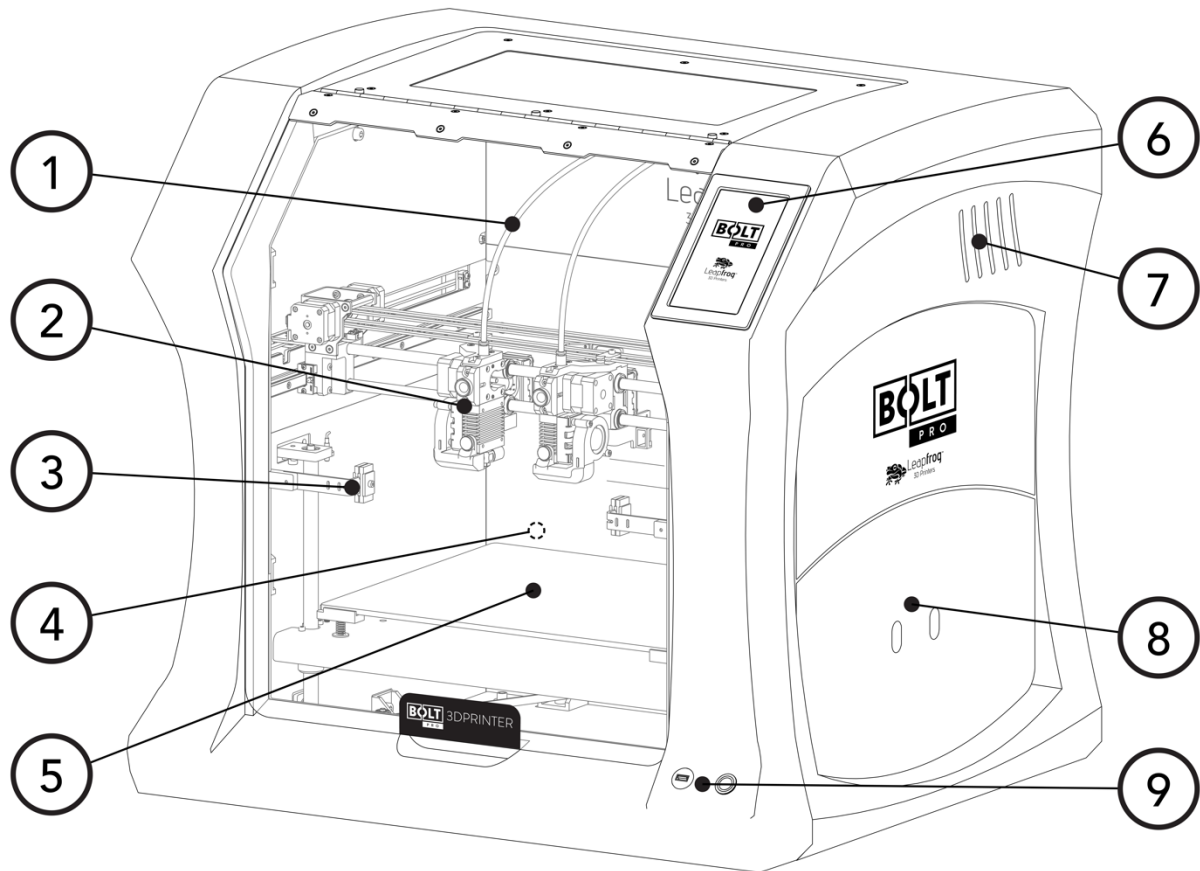
If this is not the case, please go to our website and open a support ticket, attaching a copy of the printer's original purchasing invoice and a photo of the power cable that came with the printer; our Technical Support Team will place an order for the correct power cable as soon as possible.

Once you have confirmed that you have the correct power cord, please connect the power cord to the back of the Bolt Pro in the appropriate slot and plug the other end into a grounded wall outlet. Failing to make sure that you have a grounded wall outlet can result in the printer possibly being damaged by an electric power surge. In addition to using a grounded power outlet, it is also recommended to use a surge protector.

At this point, you can safely turn on the power switch on the back of your printer.

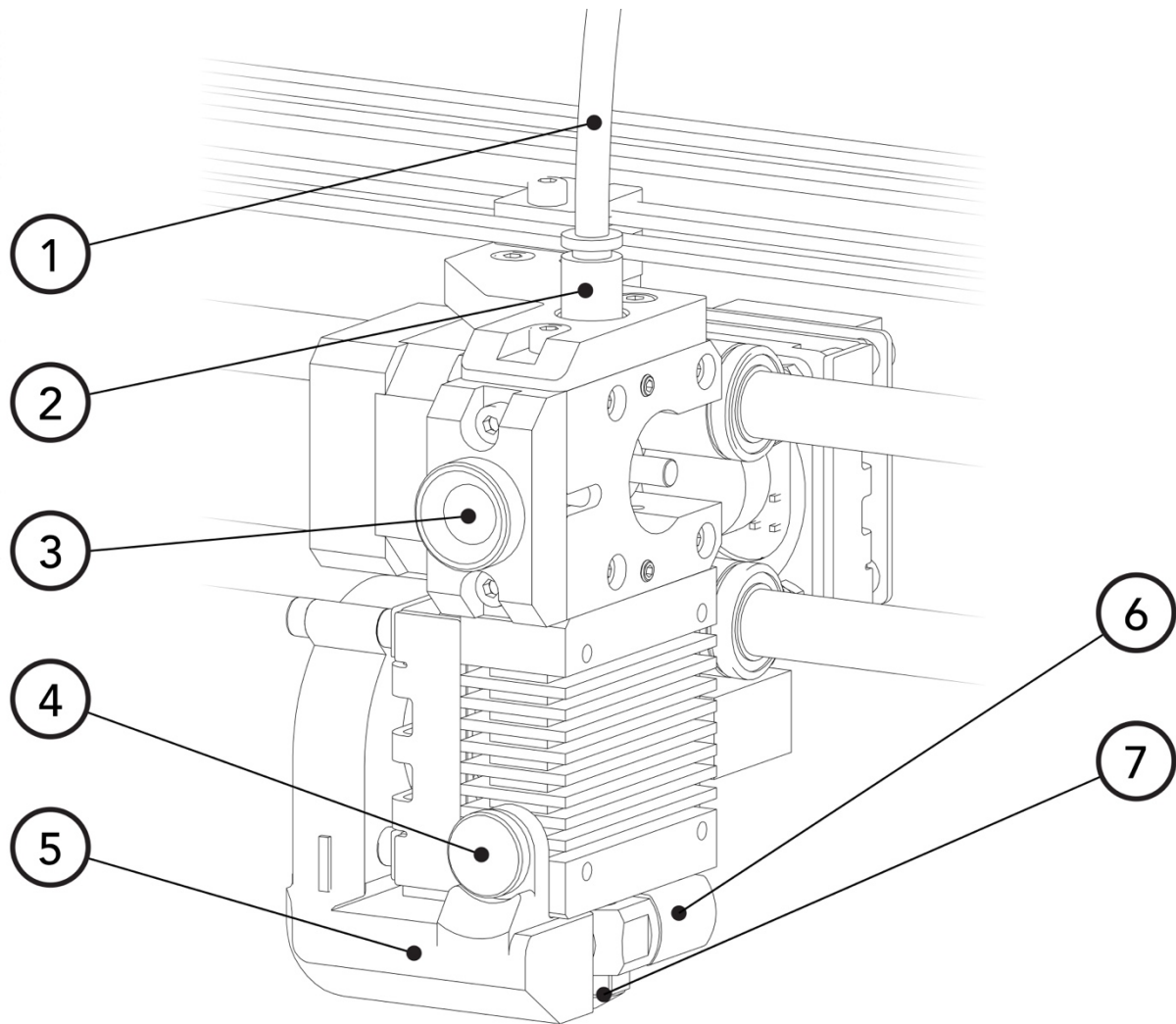
2 ABOUT THE BOLT PRO

2.1 BOLT PRO OVERVIEW



1. Filament guide tube
2. Print head (one of two)
3. Nozzle wiper (one of two)
4. Power switch (on the back of the Bolt Pro)
5. Print bed
6. Touchscreen
7. Activated HEPA Carbon filter vent
8. Filament compartment
9. On/off button and USB port

2.2 [BOLT PRO PRINTER HEAD OVERVIEW](#)



1. Filament guide tube
2. Push-in coupling
3. Filament pinch wheel (used to control the grip on loaded filament)
4. Hot-end thumb screw (used to swap hot-ends)
5. Fan-duct
6. Hot-end (includes also nozzle)
7. Nozzle

2.3 BOLT PRO SPECIFICATIONS

Specification	Metric							Imperial						
Physical dimensions (DWH)	723	x	831	x	801	mm		28.5	x	32.7	x	31.5	inch	
Printer weight	61					kg		134					lbs	
Input voltage range	88-264VAC													
Input frequency	47 - 63 Hz													
Power consumption	600W													
Build size single extruder (DWH)	320	x	330	x	205	mm		12.6	x	13.0	x	8.1	inch	
Build size dual extruder (DWH)	320	x	300	x	205	mm		12.6	x	11.8	x	8.1	inch	
Build size replicator/mirror mode (DWH)	320	x	164	x	205	mm		12.6	x	6.5	x	8.1	inch	
Build volume	21.6					L		4.8					gall.	
Heated bed max temp	90					°C		194					°F	
Closed chamber	Yes													
Hot end Max temp*	360					°C		680					°F	
Number of extruders	2													
Extruder size(s)	0.35				mm	-	1.38E-02					inch		
Filament size	1.75				mm		6.89E-02				inch			
Layer thickness	0.05		to	0.35	mm		1.97E-03		to	1.38E-02	inch			
Advised printing speed (DW)	6000		$\frac{\text{mm}}{\text{min}}$	100	$\frac{\text{mm}}{\text{s}}$		236		$\frac{\text{inch}}{\text{min}}$	4	$\frac{\text{inch}}{\text{s}}$			
Max. travel speed (DW)	15000		$\frac{\text{mm}}{\text{min}}$	250	$\frac{\text{mm}}{\text{s}}$		591		$\frac{\text{inch}}{\text{min}}$	10	$\frac{\text{inch}}{\text{s}}$			
Stepper motors	1.8° Step angle with 1/32 micro stepping													
Positioning accuracy (DW)	0.008					mm		3.15E-04					inch	
Positioning accuracy (H)	0.010					mm		3.94E-04					inch	
Body/frame construction	Aluminium Framework													
Heated bed construction	High grade glass													
Semi-automatic print bed Z-levelling	Yes													
Ethernet connection	Yes													
Wifi connection	Yes													
Internal OS	Linux													
USB standalone format	.Gcode format													
Printing modes	Single, Dual Material, Replicator mode, Mirror mode													
Open system print materials (* experimental)	PLA, ABS, HIPS, Flex, Nylon, Hybrid, Woodfill, Scaffold, Carbon*, other*													

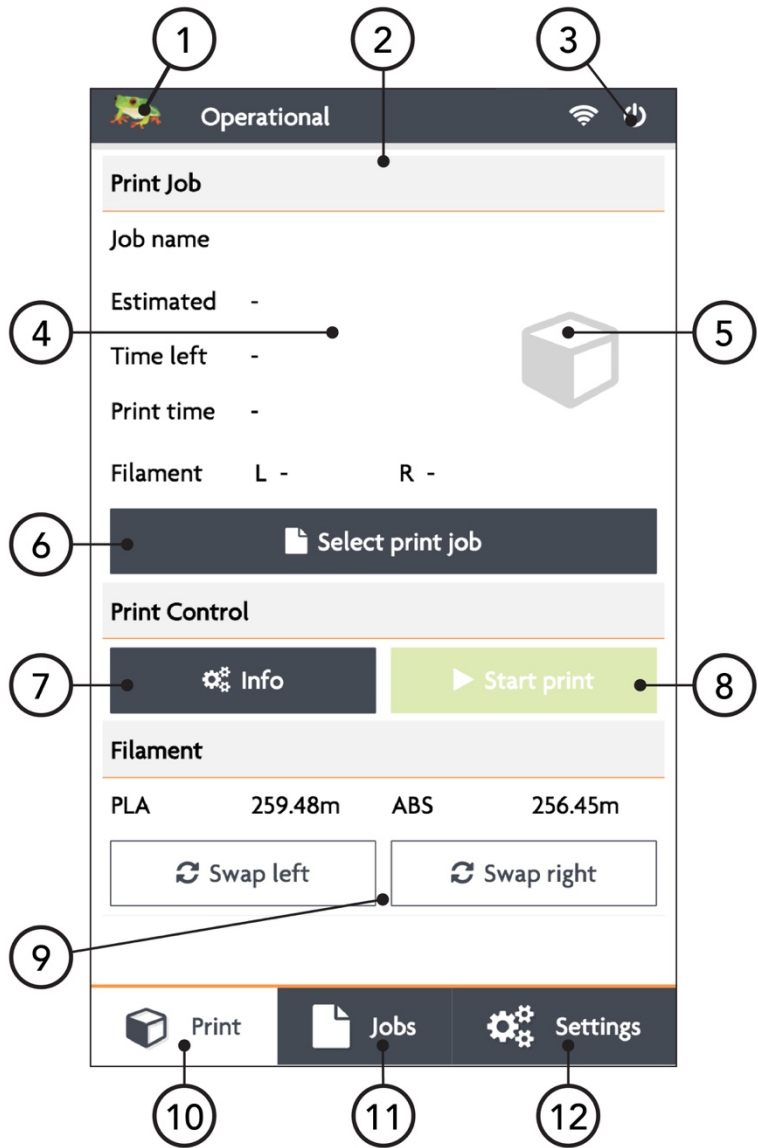
DWH: Depth, Width, Height. Coordinate system reference Y, X, Z

A Low-temp (max 250 degrees) and High-temp hot end (max 360 degrees) is supplied

2.4 LEAPFROG USER INTERFACE OVERVIEW

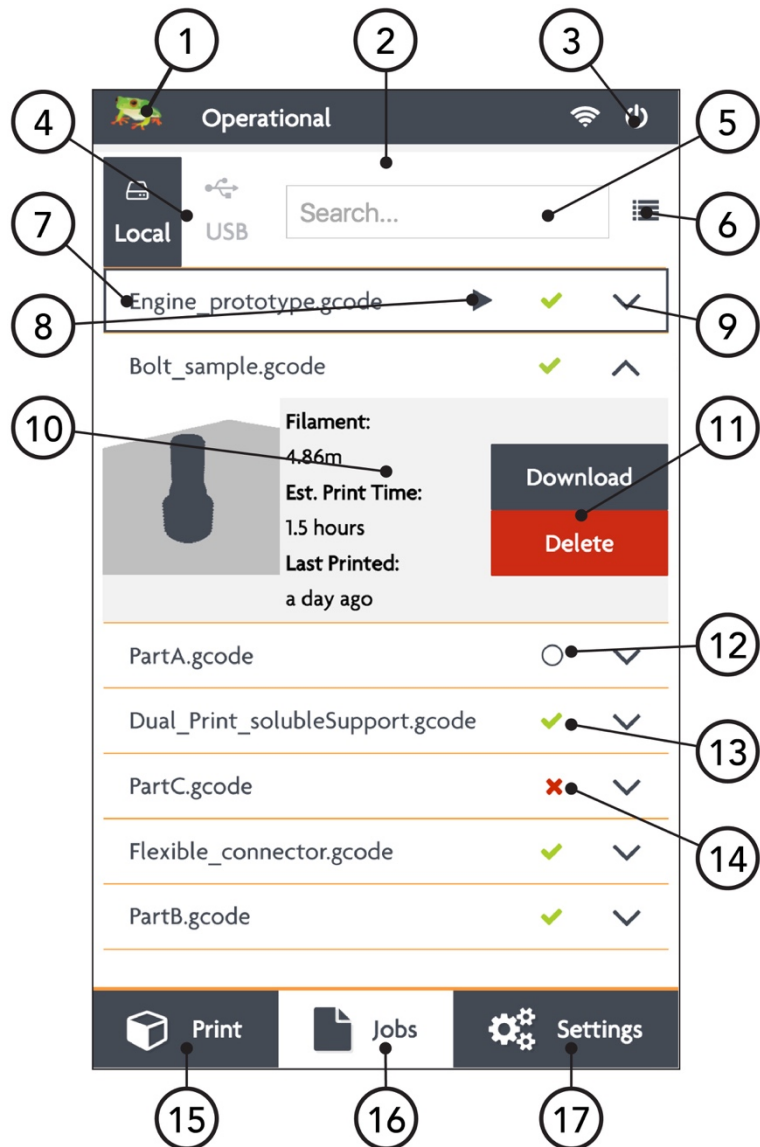
PRINT TAB

1. Software refresh.
2. Notifications area.
3. Power options.
4. Shows information about the selected print job.
5. Shows a preview of the selected print job.
6. Navigate to the Jobs tab to select a print job.
7. Shows the temperatures of the nozzles and bed and gives access to the built-in webcam live view.
8. Start a print job and select the print mode.
9. Loads the wizard to load or unload filament for the left and right extruder.
10. Shows the current Print tab.
11. Navigate to the Jobs tab.
12. Navigate to the Settings tab.



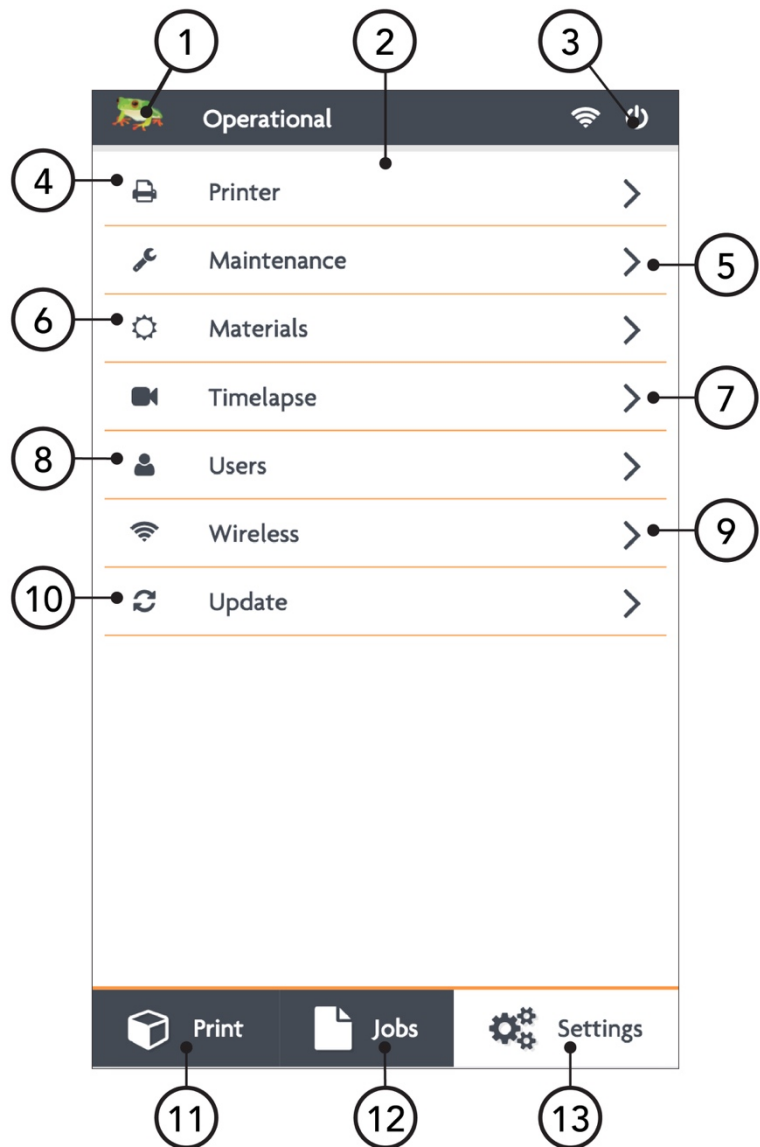
JOBS TAB

1. Software refresh.
2. Notifications area.
3. Power options.
4. Local and USB storage.
5. Search storage.
6. Sort storage.
7. Filename.
8. Print selected file.
9. Show information on file.
10. Additional information on file.
11. Delete or copy file to USB or local storage.
12. Shows that the file is not yet printed.
13. Shows that the file is successfully printed.
14. Shows that the file wasn't successfully printed.
15. Navigate to the Print tab.
16. Shows the current Jobs tab.
17. Navigate to the Settings tab.



SETTINGS TAB

1. Software refresh.
2. Notifications area.
3. Power options.
4. General printer information.
5. Navigate to maintenance menu.
6. Add, edit or remove materials.
7. Access built-in camera and download captured time lapses.
8. Add, edit or remove users.
9. Connect to wireless network and check IP address.
10. Update the Bolt Pro software and firmware.
11. Navigate to the Print tab.
12. Navigate to the Jobs tab.
13. Shows the current tab.



SETTINGS TAB

1. Moves both print heads to the front of the Bolt Pro for head maintenance.
2. Moves both prints heads to the back of the printer for bed maintenance.
3. Change the amount of filament on the loaded spools.
4. Calibrate both extruders in reference to each other.
5. Calibrate the print bed in reference to the nozzles.
6. Purge left/right extruder.
7. Close maintenance menu.



3 FIRST BOLT PRO EXPERIENCE

In order to start printer, several setup steps have to be completed. These steps are described in this manual in detail.

A shorter guide can also be found in the Quick Start Guide, delivered alongside your Bolt Pro and with the User Interface Guide.

Bolt Pro LED's

The Bolt Pro is fitted with RGB LED's.

The default colour of the Bolt Pro lighting is blue, the colour will change depending on the status of the printer. Each colour indicates a different function.

- Blue: idle
- Orange: heating
- White: printing
- Green: finished printing

3.1 [YOUR FIRST 3D PRINT TUTORIAL](#)

You can use the *Your first 3D print* feature found on the Bolt Pro user interface. This will prompt when first starting you Bolt Pro, or can be started manually.

This tutorial will guide you through the following steps:

NOTE Two spools of PLA filament are needed to successfully complete this guide.

1. Load filament, Left and Right
2. Calibrate the print bed
3. Calibrate the extruders
4. Start your first 3D print

[START THE FIRST 3D PRINT TUTORIAL MANUALLY](#)

To start the How to 3D print feature, go to *Settings* and choose *How to 3D print*. This will show you the advised steps you should perform for your very first 3D print.

[WHAT THE TUTORIAL DOESN'T SHOW YOU](#)

The tutorial guides you through the needed steps to use the Bolt Pro using the touchscreen. If you plan to use the Bolt Pro remotely, then it is needed to set up user accounts and connect the Bolt Pro to the internet.

4 PRINTER SETUP

Before you can start using the Bolt Pro, some preparation is required. Also, be sure to read Chapter 1.5: Electric Power Cord Compatibility.

The following chapters should be followed to make the Bolt Pro fully operational and print ready.

- 3.1 Setting up user accounts
- 3.2 Connecting the Bolt Pro to the internet
- 3.3 Update the Bolt Pro
- 3.4 Calibrate print bed
- 3.5 Load filament
- 3.6 Add materials (if necessary for 3.5)
- 3.7 Apply bed adhesive

You will need to set up an admin user account in order to control the amount of privileges normal users have on the Bolt Pro.

Connecting to the internet is also highly recommended to fully use its auto-updates and connectivity with your mobile phone and/or computer.

Calibrating the bed should be done at least once after transporting the Bolt Pro. The wipers will need to be checked as well.

And finally filament should be loaded and the print bed should be prepared before each print.

4.1 [SETTING UP ADMIN AND USER ACCOUNTS](#)

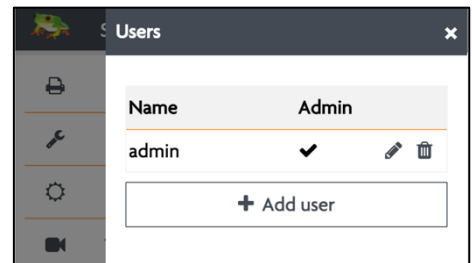
The Bolt Pro is capable of having multiple user accounts, with different levels of access. This is great for shared work environments. Remote control will only be accessible to users with an account and those that do have access may be limited to what they can do based on their account settings.

Setting up an Admin account is highly recommended *before* providing the Bolt Pro's IP address to the users in your office environment.

NOTE Replacing a forgotten password for an Admin account will be very difficult to do, so please write it down in a location that you will be able to recover it if need be later on.

To add a user, select the *Settings* tab and tap on the *Users* menu option. Add a admin user and be sure to set the check-box on green, next to *Admin*.

In the picture you see that user *admin* has administrative rights. To the right you see a pencil icon for editing this user account and a trashcan icon for deleting the user account.



The User Interface differentiates three kinds of users:

NOT LOGGED IN USERS These users can only upload files but cannot start prints from a remote device.

LOGGED IN USERS These users can upload and print, but cannot change settings from a remote device.

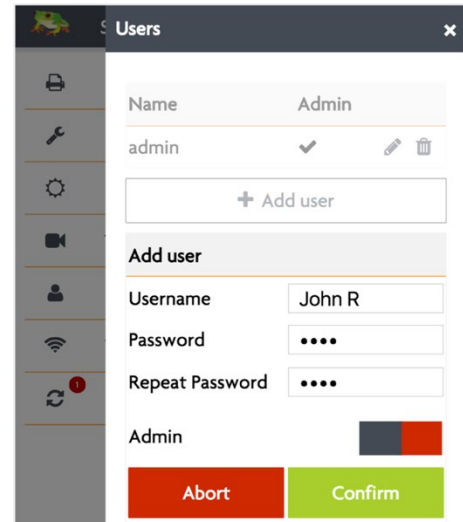
ADMIN USERS Admin users can also upload and print as well as change settings on the printer from a remote device.

To add a user, click the *Add user* button.

Use the touchscreen keyboard (by typing inside each text field) to fill out the Username, Password, and Repeat Password fields.

Make sure to indicate whether the user will have administrative privileges or not by switching the slider on green or red.

Confirm to create the account or *Abort* to cancel the account creation.



4.2 [CONNECTING THE BOLT PRO](#)

The Bolt Pro can access the internet and your network by Ethernet cable or Wi-Fi.

To do so, you will need an internet service in your home/office that is set up on a router.

For a wired connection, simply connect the Bolt Pro with your router using an Ethernet cable.

For wireless you will also need to know the name and password of the wireless network being transmitted by that router so that your Bolt Pro will be able to connect to the correct network.



Once you have this information, go to *Settings* tab and select the *Wireless* menu option. Your printer should automatically scan for any wireless networks, but if the network is not listed, select the *Rescan* button to have it refresh the network list.

To connect, simply select the listed network that you wish to connect to, type in the password and tab the *Connect* button.



Once connected, you'll see the network name, that it is communicating, the signal strength and that it is locked by the Admin.

NOTE The IP address given to the Bolt Pro can be viewed in the wireless menu, regardless of a wireless, or Ethernet connection.

If you are currently connected to a network and wish to change networks, you will need to first disconnect from the current one by selecting the *Disconnect* button.

4.3 [AUTOMATIC UPDATE FUNCTION](#)

Because our R&D department is constantly improving the quality of experience that our customers have with our 3D printers, they periodically provide new updates that further improve the printer-user experience. For your convenience, these updates are made available online and can be directly installed on the Bolt Pro, with minimal printer down-time.

To update your Bolt Pro, go to *Settings* and press *Update* to Update to the latest version available. Please ensure that you are connected to the internet to use this function.

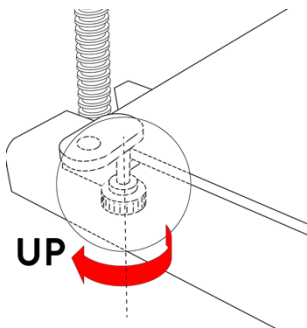
4.4 [CALIBRATE PRINT BED](#)

The Bolt Pro is a machine that moves and extrudes on the micro-meter level and exposure to shipping and transportation can cause the bed level to lose calibration.

If the first layer doesn't adhere to the print bed, the whole print can move while printing, resulting in a bad print. The right distance between the bed and nozzle prevents this from happening.

To level and calibrate the bed, go to *Settings* → *Maintenance* → *Calibrate bed*.

Continue Calibration and the screen will show a top view of the print bed with 4 squares in each corner. Each of these squares represent a position on the print bed used for calibration.

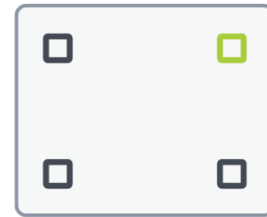


The recommended distance between bed and nozzle is around 0.15 mm or roughly the thickness of a standard sheet of paper.

Choose a corner position on the screen and find the knob underneath the bed at the corresponding position. Turn this knob clock-wise to raise the bed, and counter clock-wise to lower the bed.

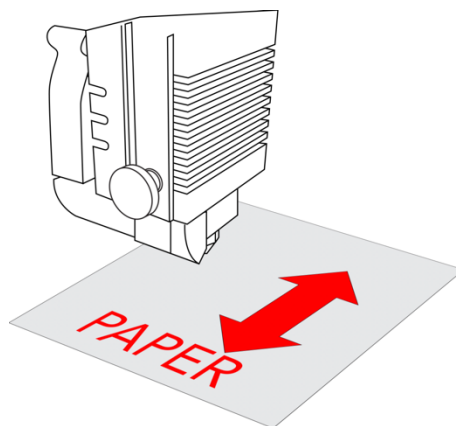
Bed leveling

Select the corner you would like to calibrate. The extruder will move into this position. You may adjust the bed by turning the knob below the bed.



Close

Hold a piece of paper between the nozzle and print bed and raise the bed until the paper is slightly pinched between the bed and nozzle. Repeat this until all four corner nozzles have the same distance from the bed. And repeat this once more to confirm that all nozzles are calibrated correctly.



4.5 [LOADING/UNLOADING FILAMENT](#)

Filament is the material what the Bolt Pro uses to print. The extruder on the right side is treated as the default/main extruder.

We recommend Leapfrog filaments and preferably PLA for the first loading process and prints.

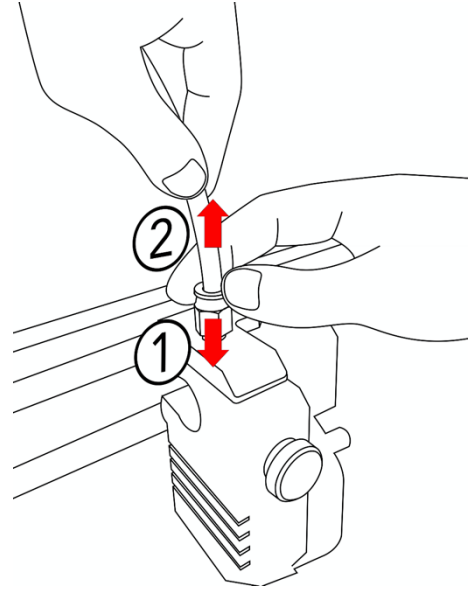
Filament will be loaded in the right side of the Bolt Pro and guided via tubes to the designated print head. The filament will be melted in the print head and printed to the print bed.

In the following steps we will swap the Right filament. Swapping the Left filament will follow the same process.

NOTE The print head assembly will perform some forceful movements during this process. Please keep all body parts or objects clear when this movement occurs to prevent injury or damage of the machine.

STEP 1

Locate the coloured push-in coupling on the right print head, connecting the print head to the filament guide tube. Remove the tube from the print head by pushing the coupling down and pulling tube upwards in the opposite direction. Leave the tube disconnected until the filament is loaded correctly.



STEP 2

On the Bolt Pro User Interface, select the *Print* tab and choose the *Swap Right* option for the right extruder.

It will ask you to confirm the unload process; please do so.

Filament			
PLA	330.00m	None	-
⌛ Swap left		⌛ Swap right	

[NOTE] The printer will first pre-heat the selected nozzle to help load and unload filament. This will extend the life of your nozzle blocks and will help prevent clogs.

STEP 3

You will then be prompted to physically unload and roll off the filament spool that was previously loaded in the printer, if applicable. To do this, open the filament compartment on the right side of the Bolt Pro and remove the filament spool from the filament compartment. The right extruder will then be empty and available for loading a different spool of filament.

STEP 4

After unloading the previous roll of filament (if applicable), the software will ask which type of filament is to be loaded into the extruder.

Select the right material from the drop menu. If the correct material isn't listed, select abort and add an additional material. This can be done in the in the Settings tab under Materials, as explained in the next chapter.

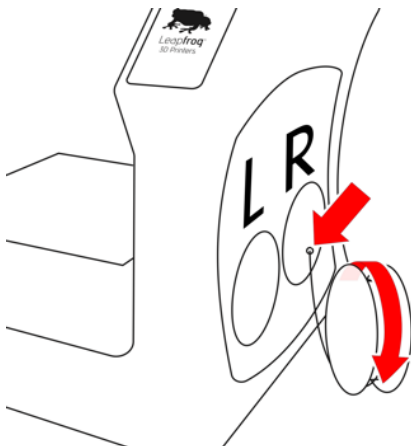
NOTE Some high performance filaments need a higher extrusion temperature. When a Hot End is loaded which isn't able to reach the desired temperature, the Bolt Pro will let you know that you need to swap for a High Temperature Hot End.

Select how much filament is on the spool. This way, the Bolt Pro knows whether or not there will be sufficient filament to print the selected print job and will notify you when there will not be enough. Keep in mind that this is as accurate as the user can determine the amount of filament left on the spool, so it will be an estimate.

NOTE For swapping both the Left and Right extruder in succession, you can pre-heat both nozzles under *Settings* → *Maintenance* → *Head maintenance*.

STEP 5

In order to help the filament feed through the machine, clip the end of the filament to where it forms a point and then use your fingers to straighten the filament out. Being wound around a spool, the filament has a natural bend; straightening just the first few centimetres out helps to prevent the filament from catching when it reaches a filament tube coupling.



Begin feeding the filament through the correct filament tube port on the right side of the printer. For loading filament into the right extruder, the right filament compartment must be used, for the Left extruder, the left.

Filament

Swapping filament: Left

Please select the new filament material

PLA

Select how much filament is on the spool:

330100%

Insert the filament in the filament drawer past both wheels.

Load

Abort

When feeding the filament to the filament entry port, ensure that the filament is rolled correctly off the filament spool. The filament should be rolled from the bottom of the spool into the entry port. If the filament is loaded incorrectly, then the loaded filament can get damaged while printing and clog the nozzles.

NOTE Some filaments such as Nylon and Scaffold have special properties that make them susceptible to things like air moisture or sunlight. Please take extra care of these types of filaments, making sure not to leave them in the printer or outside of their protective packaging. Scaffold in particular should always be unloaded from the printer immediately after use to help prevent clogging of the nozzle.

STEP 6

Feed the filament through the filament entry port; keep feeding until you see the filament in the translucent filament guiding tube reach all the way print head filament drive gear. Make sure that the filament is fed past the end of the tube.

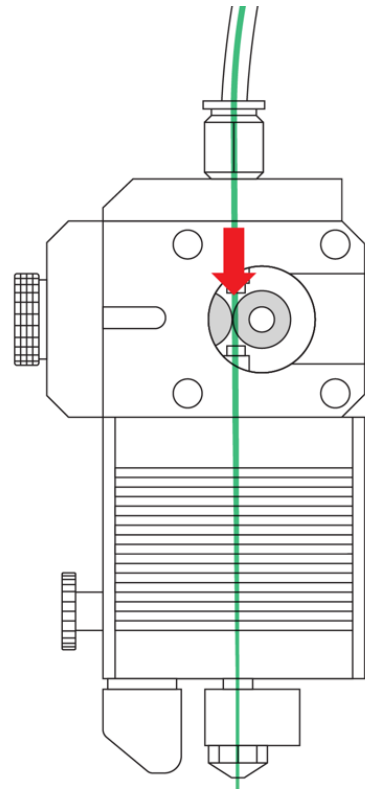
If you haven't disconnected the guiding tube in Step 1, you can choose to disconnect the guiding tube now. Now you can help feed the filament through the drive gear. Do this by gently pushing the filament down the top of the print in the coupling to the drive gear.

STEP 7

When the extruder is preheated, you will be prompted to confirm that you are ready to load the filament. Press the Load button and the print head will begin feeding filament. While the drive gear in the print head will start turning in order to feed filament, keep feeding filament by hand if needed and apply a little pressure in order for the drive gear to grip the filament. Repeat this until the filament is gripped by the drive gear.

STEP 8

The filament will be correctly loaded if the nozzle extrudes filament by simply pressing 'load more filament' on the User Interface. Connect the tube if applicable by pushing the guiding tube back in the pushing coupling.



4.6 [ADD MATERIAL](#)

Materials in the Bolt Pro software are used to pre-heat and prepare the Bolt Pro for loading and unloading filament. The actual materials settings are set in the G-code of the print file. Changing the temperatures for print settings is done in the Software which prepares your print file.

When a material isn't available when loading filament, it can be manually added. To see what materials are available, or if you would like to add an additional filament, go to *Materials* under the *Settings* tab.

A list of materials is visible under *Materials* and adding a material can be done with +Add profile.

When adding a material, fill in a profile name and add the correct temperatures to complete the material profile. Press save the to keep and start using the profiles.

Materials

Material	Extruder	Bed	(°C)
ABS	210	100	Loaded
PLA	180	60	Delete

+ Add profile

Cancel

Save

4.7 [ADHESIVE MATERIAL](#)

The print surface on the Bolt Pro is glass. Bed adhesive is required to ensure prints stick correctly to print bed. While over options are available Leapfrog recommend 3D spray as we find this to provide the best results.

NOTE Failing to ensure that a print is sticking to the bed for at least the first few layers could result in a large mass of filament collecting on the tip of the nozzle and can severely damage the printer. Though we don't expect the print to be monitored from beginning to end, we strongly advise to monitor the first critical layers of the print. Using the built-in webcam enables the user to monitor the printing process remotely.



5 PRINTING

The Bolt Pro requires a G-code file to print. G-code files are lists of instructions which the printer will follow to build up the 3D part which has been sliced with the included slicing software, Simplify3D.

The following will be covered in this chapter to print generated G-codes:

- 4.1 Starting Print jobs
- 4.2 Finishing Print jobs
- 4.3 Using different printing modes. Sync mode and Mirror mode
- 4.4 Information available on print jobs
- 4.5 Accessing and storing print jobs

5.1 [STARTING PRINT JOBS](#)

To make a 3D print, three things are required. Filament, a 3D file in G-code format and a 3D Printer. Creating a G-code from a STL is explained in the next chapter. To start your first print, you can use the pre-installed file on the storage of the Bolt Pro. Choose PLA as filament for the Bolt Pro example print.

NOTE When starting a print, it is strongly advised for the user to know that the filament is loaded correctly, the bed is correctly calibrated and the print bed is supplied with adhering material like 3D Spray or a print sticker. This is explained in the previous chapter.

The following steps will be explained below:

1. Start-up the Bolt Pro
2. Prepare the print bed
3. Select the print job
4. Select 'Start print'.
5. Wait until the Bolt Pro is heated up and starts printing its first layers.

[STEP 1](#)

Start the Bolt Pro and load filament in the Bolt Pro as explained in the previous chapter. Navigate on the Bolt Pro User Interface to the Print tab.

[STEP 2](#)

Prepare the print bed with necessary adhesive. This is explained in chapter 4.7.

[STEP 3](#)

Press 'Select print job' to navigate to the internal storage of the Bolt Pro. Here all prints on the Bolt Pro are located, as well as the linked USB storage device. Select the file you

want to print by navigating to the Print tab and pressing the ‘play’ button or ‘Print’ in the bottom of the screen.

NOTE Trying to run a G-code file that was not designed for the Bolt Pro and filament type that you have loaded will result in a failed print, most likely a clogged extruder and can damage the hardware of the Bolt Pro. Ensure that you have used the latest and correct profiles in the Simplify3D software these can be downloaded from Leapfrog website.

STEP 4

Press ‘Start print’, select the desired ‘printing mode’ (for the first sample print, we advise ‘normal’) and press Start Print.

STEP 5

The Bolt Pro will start heating its extruders to the correct temperature. Afterwards it will begin moving its head and start extruding filament on to the bed. The first couple of layers is critical for a successful print.

CALIBRATE ON THE FLY

For more advanced users; during the first layers, the bed height can still be adjusted using the knobs underneath the bed. This way you can ensure that your print will have a great start for a successful finish. Remember that turning the bed calibration knobs clock-wise raise the bed. Counter-clock-wise lowers the bed.

NOTE A scratching sound can indicate that the inactive nozzle can be touching the print bed. This means that the nozzle and bed are getting damaged. Be sure to lower the print bed slightly by turning the bed calibration knob counter-clock-wise.

5.2 [FINISHING PRINT JOBS](#)

The User interface will indicate when the print is completed.

The following steps can be followed to successfully remove the print and prepare the Bolt Pro for future print jobs.

1. Check if the print is done printing
2. Remove the print from the print bed
3. Clean the print bed.

[STEP 1](#)

A notification on the top of the Bolt Pro software telling the user that the Print is finished. Pressing the notification will remove it from the screen and the print can be removed from the Print bed. The notification will also be visible on another device if the user was still logged into the printer.

[STEP 2](#)

Carefully remove the print bed from the printer and place on a flat surface. A spray bottle containing water can be used to add in the removal of print parts. Waiting a couple of minutes will let the water dissolve the 3D Spray, releasing the print from the print bed.

The print might still be strongly adhered to the print bed so apply gradually apply force if necessary.

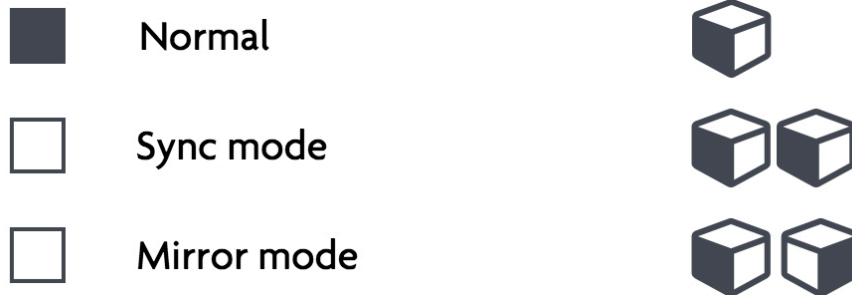
[STEP 3](#)

Clean the print bed of any debris and left over filament sticking to the print bed. A (non-metal) putty knife or similar tool can be used. If you are using a metal putty knife or something similar, be careful not to damage the print bed.

Take care when using any tool when cleaning a debris from a print sticker, as it can damage the sticker.

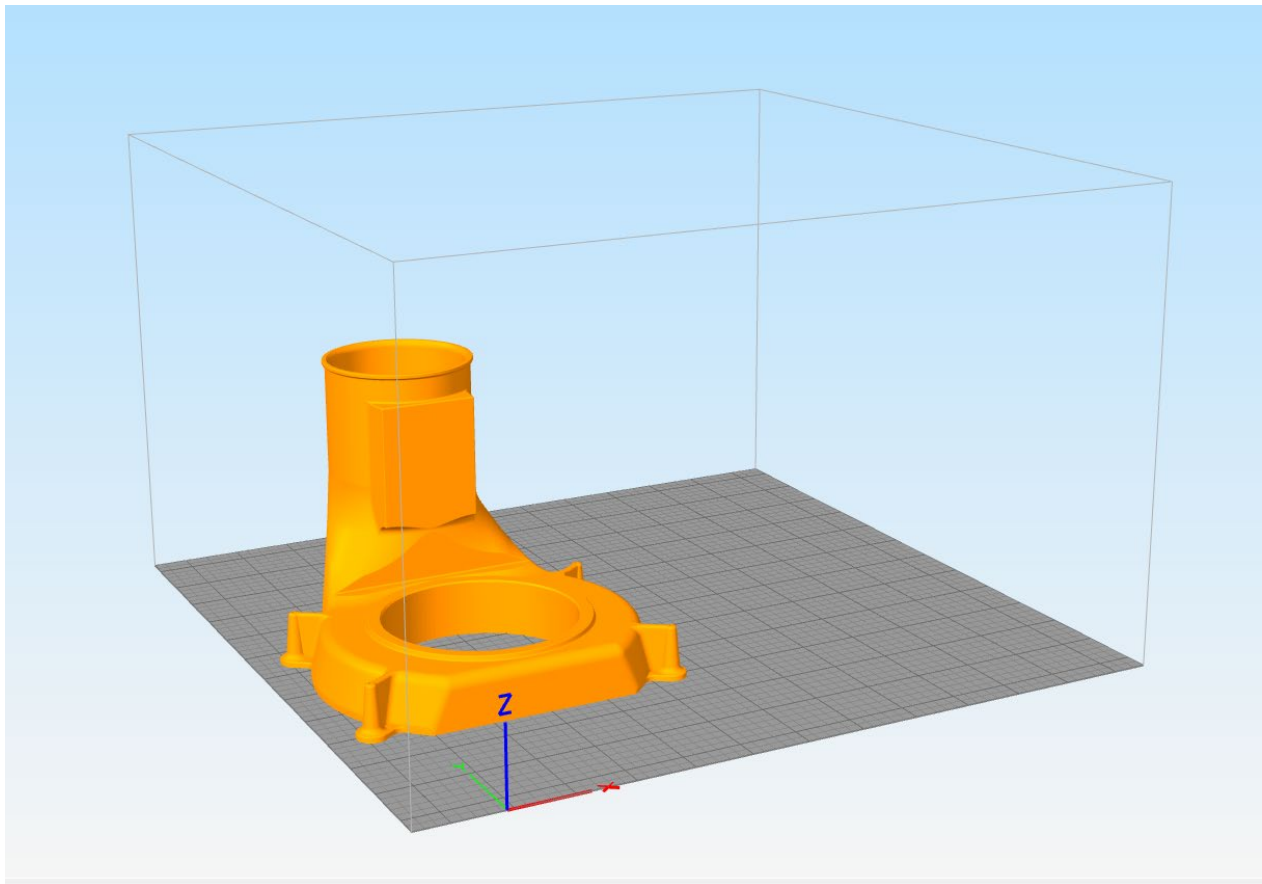
5.3 [USING DIFFERENT PRINTING MODES](#)

The Bolt Pro is fitted with two independent print heads. These *Independent Dual Extruders* can work in three different modes. NORMAL both heads work together to print a multi-material or multi-colour print. SYNC mode, both print heads print an identical part. MIRROR mode, both print heads print a mirrored part.



[PRINTING MODE BED PLACEMENT](#)

When printing in Sync or Mirror mode, the Bolt Pro will automatically duplicate or mirror your G-code and part. Therefore, only half of the build volume can be used when slicing a STL to G-code. When creating a G-code suitable for Sync and Mirror mode, be sure to place the part or parts on the Left half of the Print bed.



NORMAL MODE

Pro:	Dual material/Dual colour Full build volume Larger objects	Con:	Normal production speed
------	--	------	-------------------------

In Normal printing mode, the Bolt Pro can print either single extrusion or dual extrusion prints and the full build volume can be used.

Dual-material or dual-colour printing is selected from within the Simplify3D slicing software.

If printing with a single material or colour only the selected print head needs filament loaded. If printing a dual extrusion print, both left and right print heads will need to be loaded.

SYNC MODE PRINTING

Pro:	Double production speed Make a copy of the print Used for multiples of 1 print	Con:	Single material/colour Reduced build volume Smaller objects
------	--	------	---

Sync mode printing will use both print heads simultaneously to print two identical parts.

In Sync mode the available print area will be halved since the Bolt Pro will have to print the same object twice. Both extruders will be used so both the Left and Right filament should be loaded.

Printing in sync mode will require a G-code file set on the correct left half of the print bed. The Bolt Pro will copy the G-code automatically to the other half of the print bed.

MIRROR MODE PRINTING

Pro:	Double production speed Make a mirror copy of the print Used for symmetrical prints	Con:	Single material/colour Reduced build volume Smaller objects
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Mirror mode printing will use both print heads simultaneously to print two mirrored parts.

The difference with Sync mode printing is that the print will be not be copied but mirrored in the X-axis. This can be useful when making moulds or symmetrically shaped objects.

In Mirror mode the available print area will be halved since the Bolt Pro will have to print an additional mirrored copy of the selected print. Both extruders will be used so both the Left and Right filament should be loaded.

Printing in Mirror mode will require a G-code file set on the correct left half of the print bed. The Bolt Pro will copy and mirror the G-code automatically to the other half of the print bed.

5.4 [INFORMATION AVAILABLE ON PRINT JOBS](#)

The Bolt Pro analyses print jobs uploaded to its internal storage.

The Bolt Pro will let the user know which nozzle is set in the G-code, as well as how much filament will be needed. If the amount of filament left on the loaded filament spool is less than needed, then the Bolt Pro will disable the start print function, preventing the user to start printing an incomplete print.

It will also give you a rough preview of the selected print job as well as an estimation on how much time it will take printing it.

5.5 [ACCESSING PRINT JOBS](#)

The Bolt Pro has internal storage for G-code files. This storage can be accessed on the Bolt Pro or on your computer, phone or tablet using Wi-Fi. The Bolt Pro has a USB port as well.

Accessing the Storage can be done via the Jobs tab in the bottom of the screen. Here you can access the local storage, USB storage and search for a print.

5.6 [UPLOADING PRINT JOBS: USB](#)

When plugging in a USB storage device, you will be prompted to browse the USB files. You can also access the USB on the top of the Jobs tab. On the USB storage you can navigate to the desired file and upload it to the Bolt Pro.

5.7 [UPLOADING PRINT JOBS: NETWORK AND WIFI](#)

To upload prints to the Bolt Pro using Wi-Fi, the Bolt Pro has to be connected to the same network as your computer. In the wireless menu, an IP address can be found. Place this IP address into your browser as you would a website URL to access the Leapfrog User Interface of the Bolt Pro. Login to get the right privileges and upload files in the Jobs tab.

For more information on accessing the Bolt Pro via your network, see to chapter 6.3

6 CREATING A PRINTFILE WITH SIMPLIFY3D

When using Simplify3D to prepare a G-code file, ensure you have the correct and most recent material profiles. This can be downloaded from the support section of the Leapfrog website. [Print Settings](#).

DO NOT use the included profiles included with Simplify3D. These settings are not produced or maintained by Leapfrog.

To create a G-code for the Bolt Pro, a digital 3D model will need to be imported into the software. A commonly used, and broadly accepted file type is an STL file type.

NOTE Creating a 3D model is not explained in this tutorial. Free 3D model STL's can be found online, as well as free 3D modelling tools.

Creating a G-code from a STL means that the Simplify3D will slice the 3d model into separate layers, for the printer to build the 3D model layer by layer. Another commonly used word for a program like this is therefor a 'slicer'. For more information on 3D printing and slicing, see the [Learn](#) section of the website and follow the free courses.

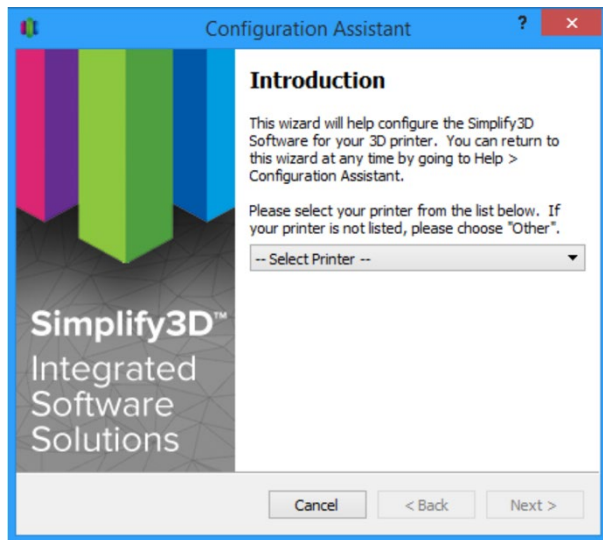
6.1 [SIMPLIFY3D](#)

Simplify3D is professional third part piece of software. It is not produced by Leapfrog. Leapfrog provide one full licence which can be used on two separate computers.

Install the Simplify3D software on a computer which meets the minimum requirements and create or download the desired STL file that you want to print. For more information on Simplify3D refer to the Simplify3D User Manual:

Simplify3D provide tutorial videos and courses on their website [here](#). The below is a very basic overview of the software, it is therefore recommended to watch and read through the provided guides.

6.2 CONFIGURATION ASSISTANT

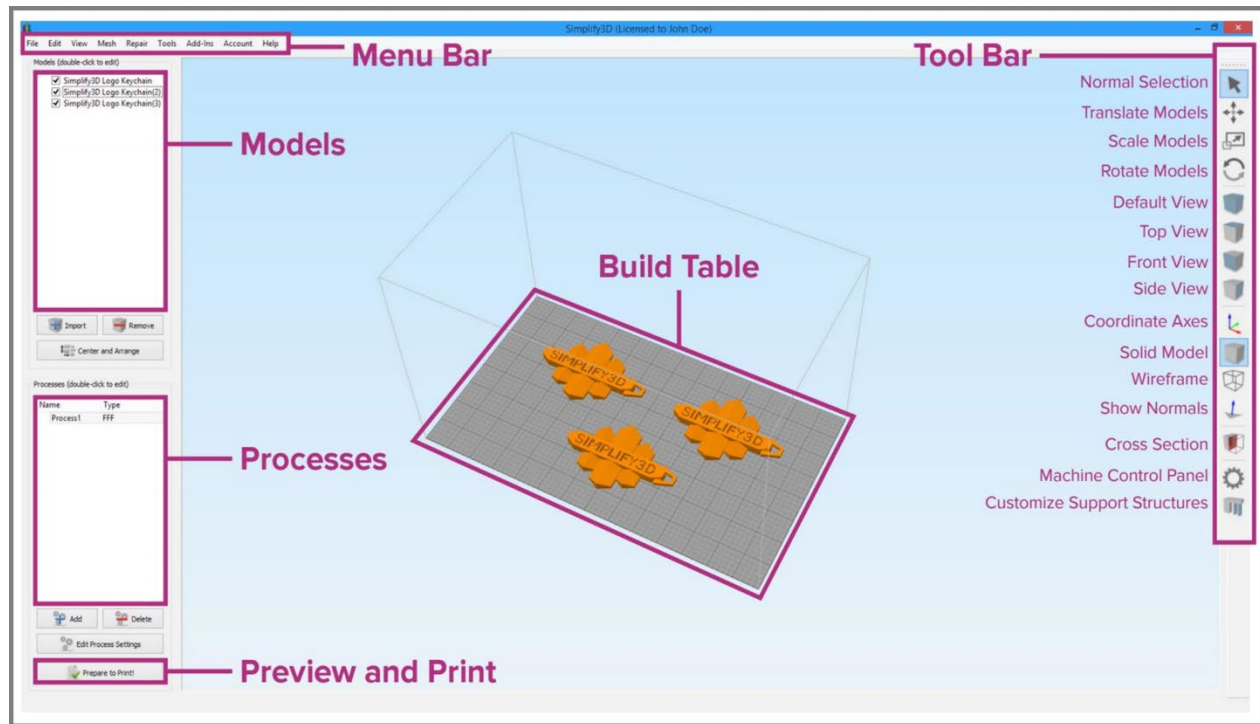


When you open Simplify3D for the first time, you will be greeted by the Configuration Assistant. This can also be found at any time under Help, Configuration Assistant.

Select the Bolt from the drop down menu.

6.3 [SIMPLIFY3D INTERFACE LAYOUT](#)

After configuration is complete, the follow interface will be shown. From here you will be able to import, adjust and process your 3D model ready for printing.



6.4 [PREPARE YOUR 3D PRINT](#)

Obtain a 3D model either created in a CAD program or download one from a repository such as [Thingiverse](#). The file type should be .stl or .obj.

Click import in the Models section and click “centre and arrange” to automatically distribute your model (s) to the centre of the print bed.

6.5 [PROCESS YOUR 3D PRINT](#)

The selected Process will determine how Simplify will slice the 3D model. The Configuration Assistant should have created 'Process1', which will be suitable for most prints.

Editing processes can increase the print quality greatly. Advanced parameters can be altered here along side basic process settings. The basic settings are FFF Settings are:

[SELECT PROFILE](#)

This loads a printer profile with corresponding settings.

[AUTO-CONFIGURE FOR MATERIAL](#)

This will adjust the temperature, extrusion and cooling settings based on the select filament.

[AUTO-CONFIGURE FOR PRINT QUALITY](#)

This will adjust the layer-height, infill density and other quality settings based on the level you desire.

[AUTO-CONFIGURE EXTRUDERS](#)

Here you can select the extruder you want to print with. In this manual, we use the right extruder as a default.

[INFILL PERCENTAGE](#)

Adjusts the solidity of the print. 0% infill will create a hollow model where 100% will create a solid model. This can increase, or decrease the print time greatly and we advise you to use a value in the range of 15-25%.

[INCLUDE RAFT](#)

A raft is an additional structure which will increase the bonding of you print with the build platform. This will not be needed for most prints.

[GENERATE SUPPORT](#)

This will automatically generate break-away support for your 3D print.

For more information about support, slicing and other 3D printing techniques and knowledge, we advise you to follow our free online courses. These can be found in the [Learn](#) section of the Leapfrog website.

6.6 [PREVIEW YOUR 3D PRINT](#)

After finalizing the print settings, you can go to 'Prepare to Print!'. This will initiate a preview of how your 3D print will be printed.

The preview mode will render the exact movement the printer will make, allowing you to preview how the model will be constructed. This can give you information about the end result before hand and experienced users will use this feature intensively.

Preview mode will provide two interactive buttons:

[PLAY/PAUSE](#)

Play or pause an animated print preview.

[START AND END SLIDER BARS](#)

Move manually through animated preview.

On the top left Simplify3D will show Build Statistics which are the Build time, used filament length, weight and an approximation of the material costs.

6.7 [PRINT](#)

To start printing, save the generated g.code for printing by choosing Save Toolpaths to Disk. This file can then be transferred to the Bolt Pro using an USB drive or via the network connection.

7 LEAPFROG USER INTERFACE

The comprehensive and intuitive User Interface allows the user control printing, maintenance and the internal storage of the Bolt Pro.

For a quick overview of the Leapfrog User Interface, see to chapter 2 of this manual. For more information on how to use the software for printing, see to the chapter 'Printing'.

7.1 [LEAPFROG USER INTERFACE FEATURES](#)

The User Interface provides the user control of the Bolt Pro when printing and keeping the printer in good condition. In the settings tab the Bolt Pro can be calibrated and set in certain positions to help the user maintain and clean their Bolt Pro.

The User Interface is accessible via other platforms like a phone, tablet and computer and can update automatically. When connected to the Bolt Pro with a remote device, the user can download and upload files, stored on the Bolt Pro. The built-in webcam can be accessed as well and timelapses can be made and downloaded from the Bolt Pro.

When uploading files, the Bolt Pro will analyse the file to provide useful information as printing time and needed filament. When the Bolt Pro sees that the amount of filament exceeds the amount filament left on the spool, it will tell the user.

7.2 [STATIC IP AND CUSTOM DNS SERVERS](#)

In order to connect your printer to the internet and let people from outside your network connect to the printer, it is useful to give the printer a static IP.

To do so, go to the Wireless menu under Settings. Connect to the dedicated network and when connected, press the pencil icon to set a static IP address and custom DNS server settings.

For detailed information about your specific IP address and DNS settings, please contact your IT expert.

7.3 [REMOTE ACCESS AND USER PRIVILEGES](#)

The Leapfrog User Interface can be controlled using the touchscreen on the machine, or with another device equipped with network capability and a browser. This also enables the user to use the webcam's live view function.

Using the Bolt Pro from the touchscreen will give the user full access to it's functions and capabilities. Accessing it remotely will restrict the user with certain functions depending on the assigned privileges from the account. The different types of users are;

NOT LOGGED IN USERS These users can only upload files but cannot start prints from a remote device.

LOGGED IN USERS These users can upload and print, but cannot change settings from a remote device.

ADMIN USERS Admin users can also upload and print as well as change settings on the printer from a remote device.

7.4 [REMOTE ACCESS TO THE BOLT PRO](#)

NOTE The following chapter will describe how to access the Bolt remotely using your personal network.

Connecting to the Bolt Pro via a remote device can be done using the following steps.

1. Connect the Bolt Pro to your network
2. Find the IP address of your Bolt Pro
3. Connect your device to the same network
4. Open the IP address in your preferred browser
5. Login with your user account

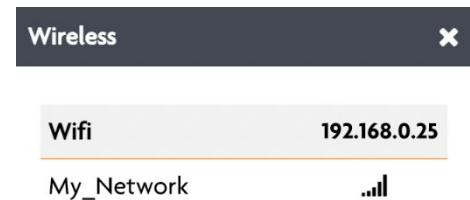
[STEP 1](#)

Connect the Bolt Pro to the network using Ethernet or Wi-Fi. When using Ethernet, use an Ethernet-cable to connect the Bolt Pro directly to the router.

When using Wi-Fi, connect the Bolt Pro to the Wi-Fi network using the Settings → Wireless tab, as explained in the chapter ‘Printer Setup’.

[STEP 2](#)

Go to Settings on the Bolt Pro and go to Wireless. If the Bolt Pro is connected correctly to the network, there will be a number shown in the top right corner consisting of 6 to 8 numbers. In this example we will use the IP address 192.168.0.25.



This is the IP address your network has allocated to the Bolt Pro when it connected to the network and which will be used to connect the remote device to the Bolt Pro.

[STEP 3](#)

Go on your preferred device with network capabilities and a browser and connect it to the same network as the Bolt Pro.



[STEP 4](#)

Open your preferred internet browser on the remote device and type in the IP address you have found in the Wireless menu of the Bolt Pro.



The browser should start up the Leapfrog User Interface of the Bolt Pro on your device.

STEP 5

In order to be able to print or change settings, the remote device should be logged in to the admin or similar privileged user account.

To log in, click login in the top right corner of the screen and fill in the correct user name and password.

7.5 USING THE WEBCAM

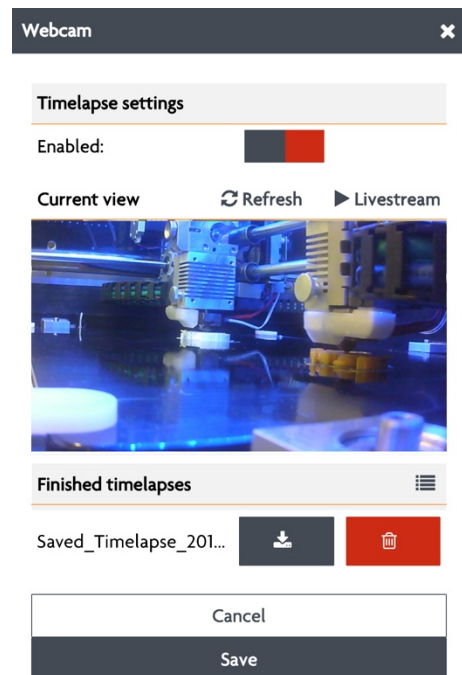
The Leapfrog User Interface can access the built-in webcam to view the current print job or create a time lapse of your print.

There are two places where you can access the webcam. On the print screen go to info, and click *Live stream* to see a live stream of the built-in webcam.

To access the webcam, go to Settings → Webcam, to open the webcam screen.

Here a current view of the webcam will be shown as a picture, which can be refreshed. Livestream can also be selected to view a live stream of the current print job.

To create a time lapse, the Timelapse settings must be enabled before starting a print job. Afterwards, the timelapse can be found under 'Finished timelapses' where they can be saved or deleted from the Bolt Pro.



7.6 PURGE NOZZLES

This function can be used to purge the nozzles of excess or old filament. This can be useful when cleaning the nozzles and keeping them in good condition.

7.7 MATERIALS

Under Settings → Materials different types of materials and filament can be added, edited and removed.

The Bolt Pro pre-heats the nozzles before purging, cleaning and swapping filament. Different filaments have different nozzle temperatures. Setting the temperature per type of material correctly helps prolong the life of your nozzles and will reduce the possibility of clogged nozzles greatly.

8 MAINTENANCE & TROUBLE SHOOTING

Please refer to the Maintenance Schedule available from Support section for the Leapfrog website for a comprehensive guide to machine maintenance.

8.1 [INSTALLING UPDATES](#)

The Bolt Pro can update automatically when connected to the internet. Be sure to check regularly in the Settings tab if an update is available. The number of updates available is indicated by the number shown in the red circle.

To update, go to Update in the Settings tab, and press refresh in the top right corner.

Then, press update to update the Bolt Pro.

8.2 [PRINT HEAD MAINTENANCE](#)

Print head maintenance has multiple features which help you work with the print heads and keep them in good working order.

[FILAMENT SETTINGS](#)

Here you can quickly swap filaments without the “swap left/right” option. To swap filament follow the following steps:

This is not the advised method so use this method at your own risk.

1. Pre-heat the designated nozzle
2. Unload the filament
3. Select the correct filament material, if applicable
4. Manually load the selected filament

[PRE-HEAT](#)

This will heat the print head to the set temperature of the loaded filament material type.

[UNLOAD](#)

This will retract filament into the print head, allowing you to unload filament quickly.

[PURGE](#)

This will extrude a certain amount of filament. This can be used to load filament quickly or clean the print head of filament which has been contaminated in any way.

[SWAP HOT ENDS](#)

This will move both print head to the front of the Bolt Pro. Now you can loosen the hot end thumb screw on the print head and disconnect the hot end at the back of the print head. The current Hot End can now be replaced.

8.3 [CLEANING THE PRINT BED](#)

The print bed should be completely clean before starting the next print.

The 3D Spray adhesive and debris can be removed using a detergent like window cleaner and a putty knife. Scrape the filament debris away with a putty knife and clean the free platform with a mild detergent.

8.4 [CLEANING THE EXTRUDERS](#)

In case of a clogged nozzle, heat up the clogged nozzle as if you were swapping filament. Try to unload all filament from the extruder. Afterwards, wait until the extruder is properly heated and re-load filament into the extruder.

8.5 [REPLACING THE EXTRUDERS](#)

Hot End's degrade over time, this can be effected by the type of material used in them. To replace the Hot End, unscrew the lower thumb screw on the front of the print head. Disconnect the Hot End connector from the print head PCB.

8.6 [LEVELLING EXTRUDERS](#)

Perform bed calibration and calibrate the bed on the four corners. Position the print heads at the center position and get a sheet of paper, of a spacer of 0.150mm. Place the spacer, or piece of paper, between the bed and nozzles. Unscrew the lower thumbscrews of both heads, loosening both Hot End and dropping them on the spacer. Tighten both thumbscrews when both extruders are down on the spacer to level the both extruders.

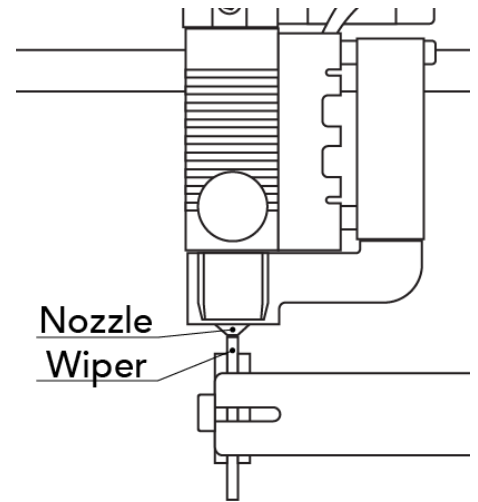
8.7 [CALIBRATE PURGE WIPERS](#)

The height of the Purge Wipers should be checked after calibrating the Hot Ends to the bed. Before and after each layer, the Bolt Pro will purge its nozzle to remove any excess filament to prevent oozing and leakage of filament on the printed part. The wiper height should be gently touching the nozzles.

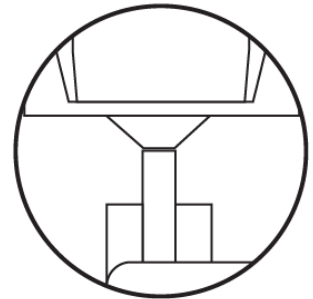
When the wipers are too low or too high, purging won't be effective, resulting in strings and oozing your printed parts which need to be removed afterwards.

To adjust the height of the wipers, you can unscrew the wiper from its holder. Then the wiper can be adjusted by either widening the hole in which it is fastened or cutting the top of the wiper to the correct height.

When the wiper is at the right height, fasten the screw holding the wiper in place.



Correct height:



9 CONTACT & ADDITIONAL SUPPORT

9.1 [TECHNICAL SUPPORT INFORMATION](#)

Keep in mind also that we have an eager and experienced Technical Support Team standing by to assist you with any questions you may have. If you are new to 3D printing we have great online courses these can be found on our website's [Learn](#) tab. Our Support Team works best through our ticketing system and regularly updated solution articles, both found on our website's [Support](#) tab.

To open a ticket you will need to set up an account (which is a free, and fast process), you will then be able to open a new tickets direct to our support agents, who are eagerly awaiting to assist you. In the ticketing system, up to 15MB of files can be sent per message allowing Technical Support to send you links, photos, videos, test G-code files, and more. You too could upload photos and videos of your technical issue to better describe what is happening. Customers have praised our ticketing system in the past as being fast, chat-like, and a quick method of resolving any questions or issues that they had.

We also offer live messaging chat - when agents are available - that can be accessed by logging into the ticket system.

Questions can also be answered over the phone. We advice you to create ticket beforehand and have you ticket number nearby. Simply give us a call: +31852080825 between the hours of 9:00AM - 3:30PM CET, Monday through Friday. At the time of writing this manual, we do not have a toll free phone number.

When leaving a message for a phone appointment, it is advised to have a ticket created as well.

Company Information

ADDRESS

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2408 AW Alphen aan den Rijn
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ONLINE

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Courses: courses.lpfrg.com
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Instagram: https://www.instagram.com/leapfrog_3d/
Youtube: youtube.com/c/Leapfrog3DPrintersBV
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