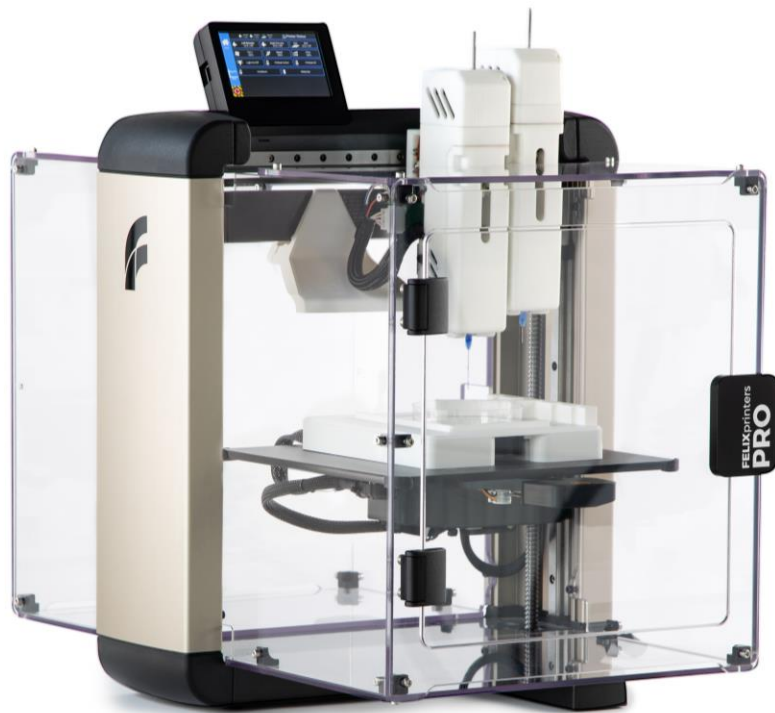


How to perform the software update

FELIX Bio series

21 June 2024

Revision 2



1 Introduction

This manual explains how to perform the full software update for the Bio. With this software update some bugs are fixed and the overall print quality and user experience is greatly improved.

It is very important to follow all the steps in the correct order. Otherwise, certain parts of the update may fail!

Keep in mind that the update will take you about 30 to 60 minutes.

You can download the software update package from the FELIXprinter website.

https://shop.felixprinters.com/downloads_felixprinters

Find the package on the download section here:

1. Pro Series -> 6. FELIX Bio -> 8. Software update package Bio

2 Tools

The tools you need to perform the software update:

- Laptop/pc with active LAN/WLAN connection.
- Printer with Active LAN/WLAN connection. (No internet? Go to troubleshoot chapter 9.2 and follow that instruction to perform the server update offline).
- A syringe for calibrations..

3 Content

The content in this manual:

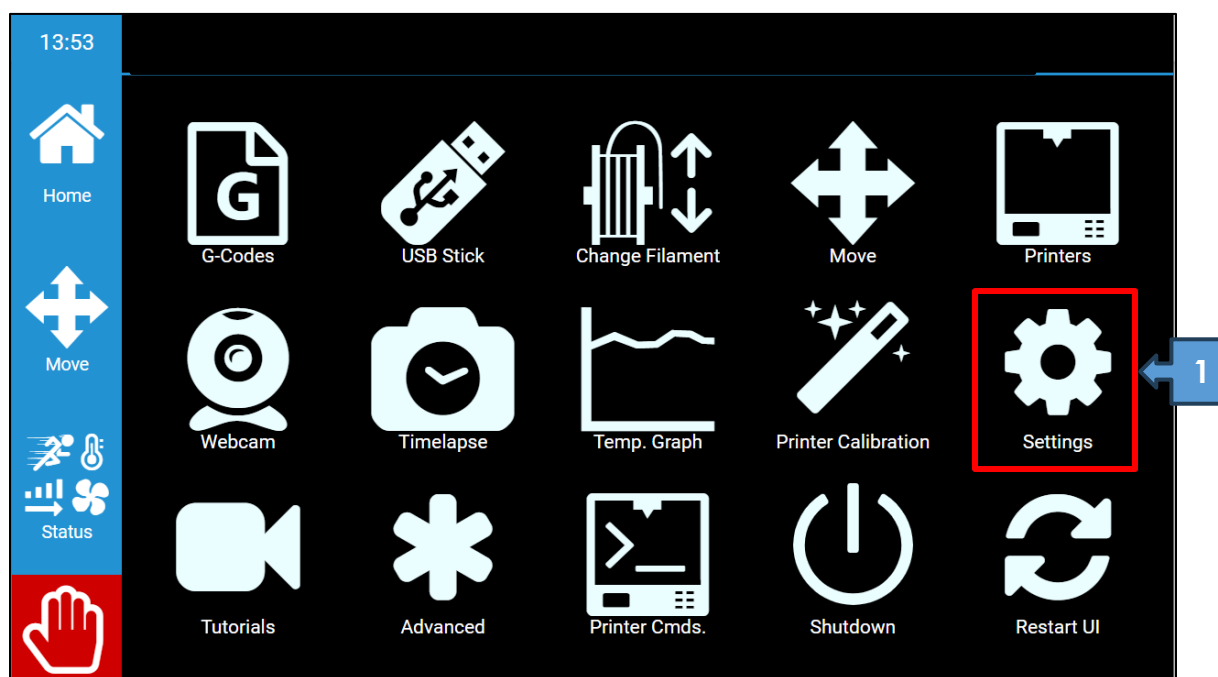
- | | | |
|-------------------------|-----------|-----------------|
| • Update server | Chapter 4 | (5-20 minutes) |
| • Update RPC/XML | Chapter 5 | (5 minutes) |
| • Update firmware | Chapter 6 | (5-15 minutes) |
| • Perform calibrations | Chapter 7 | (10-15 minutes) |
| • Update slice profiles | Chapter 8 | (5 minutes) |

4 Update server

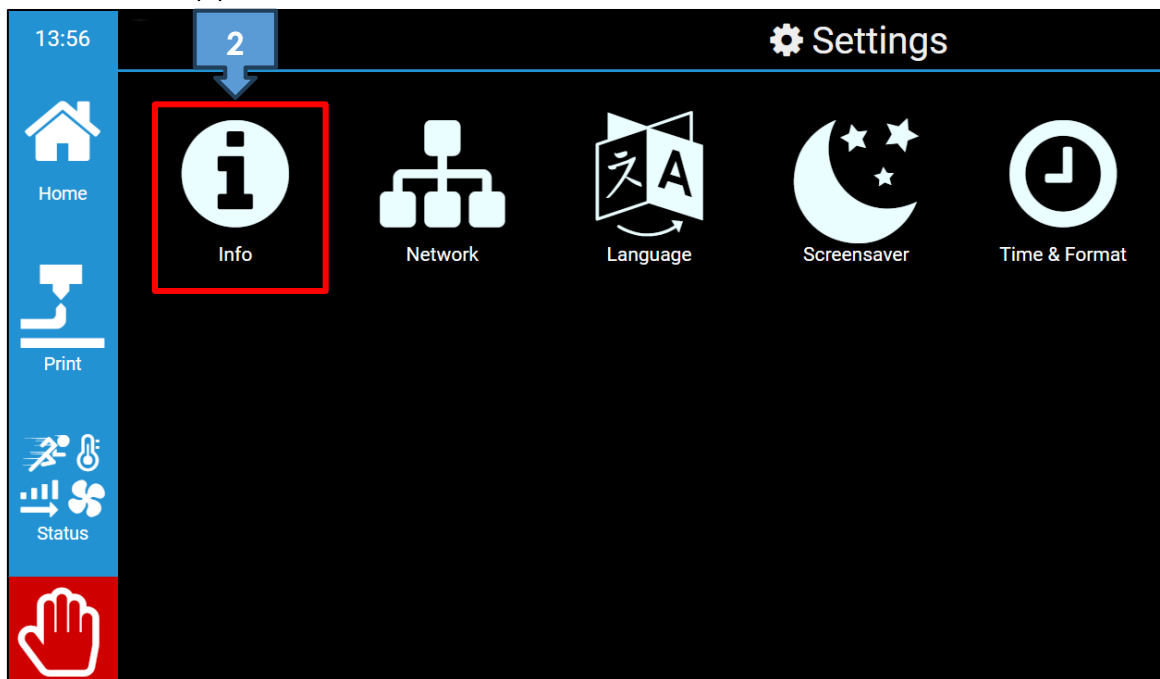
There are two options for updating the server. You can use the touchscreen (first part), or you can use the web interface (second part). If you have troubles with updating, go to the trouble shoot section (chapter 9) at the end of this manual.

4.1 Touchscreen

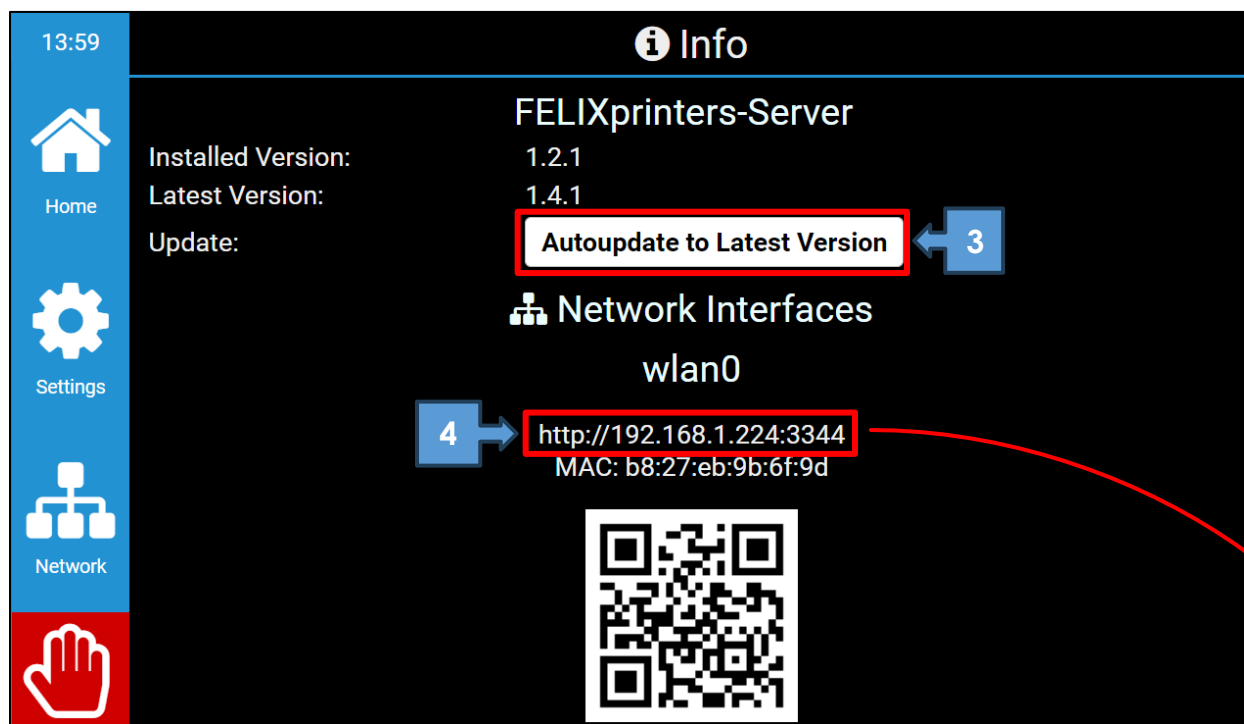
- Select "Settings" (1) to go to the settings menu.



- Select "Info" (2) to show the current version of the server and the IP address.

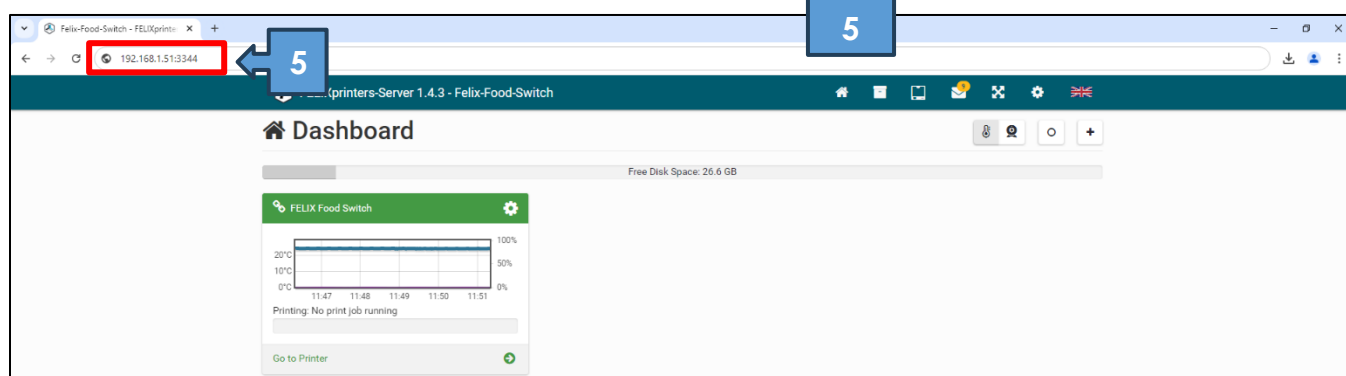


- Select “Auto update to Latest Version” (3).
- The printer will automatically update to the newest version.



The printer needs to download 60MB for this update. This should be done within a minute with a fast network speed. This can take longer if you have a slow network speed. If it keeps updating for too long for your network speed, go to the troubleshoot chapter 9.1 at the end of this manual.

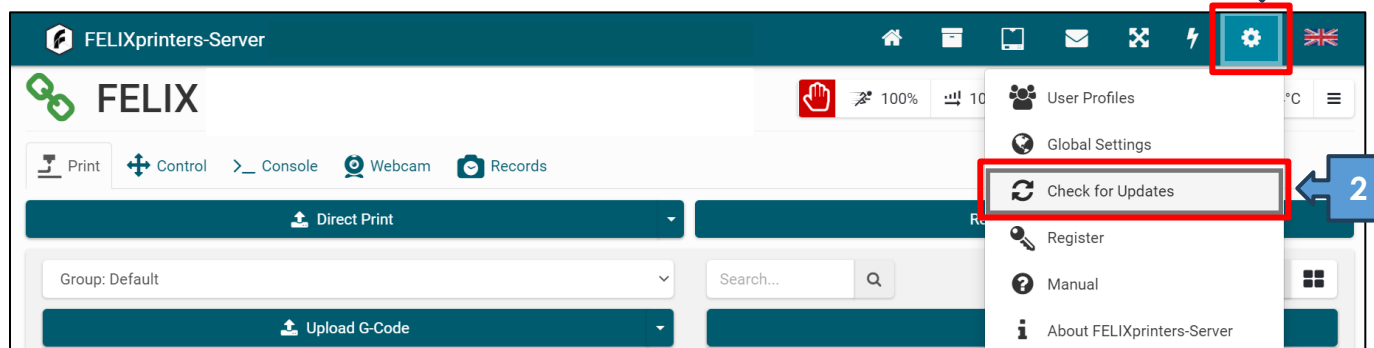
- When the update is done, fill the IP address (4) shown above in a web browser (5) and hit enter. This will show you the web interface of the touchscreen.



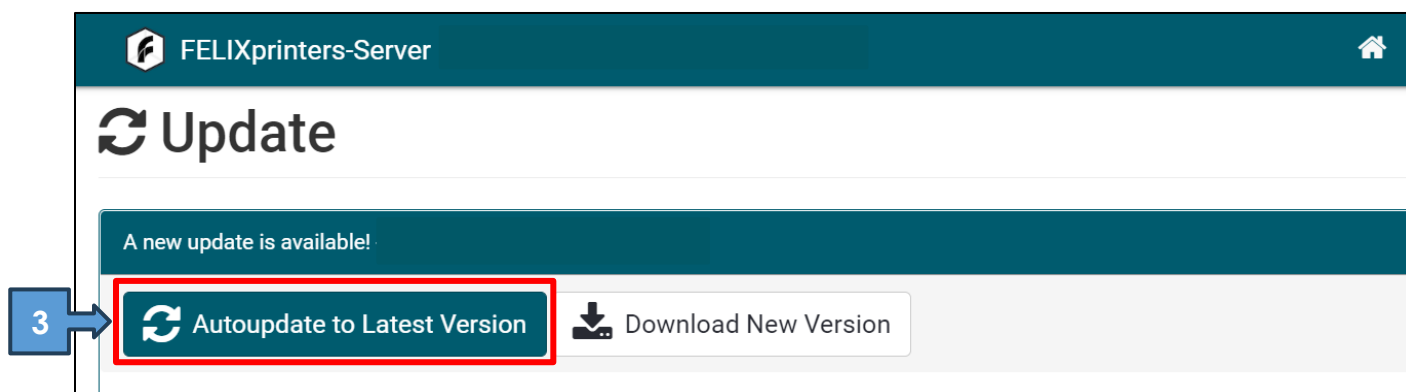
4.2 Web interface

Follow the steps from 4.1 to find your IP-address. Fill in your IP into a web browser to go to the web interface.

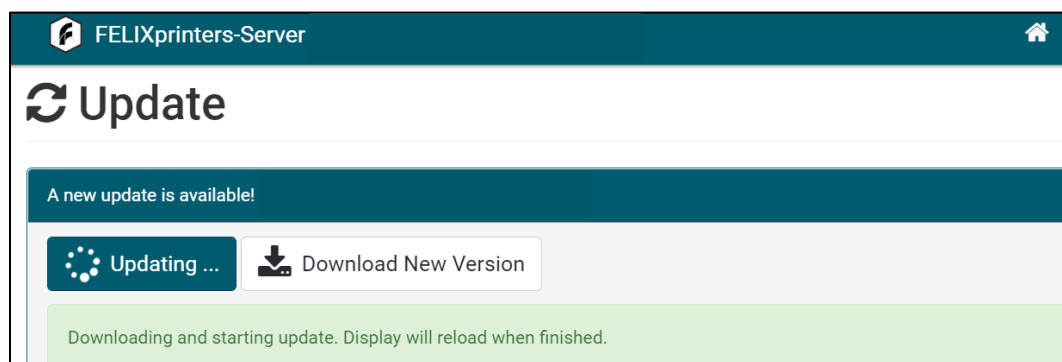
- On the web interface, select the “Gear” icon (1) and then “Check for Updates” (2).



- Select “Autoupdate to Latest version” (3).



- The printer will automatically start the update to the newest version.



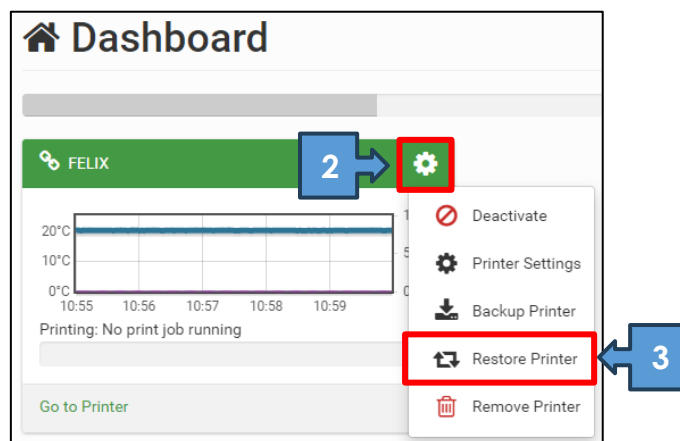
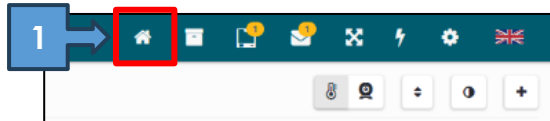
The printer needs to download 60MB for this update. This should be done within a minute with a fast network speed. This can take longer if you have a slow network speed. If it keeps updating for too long for your network speed, go to the troubleshoot chapter 9.1 at the end of this manual.

5 Update RPC

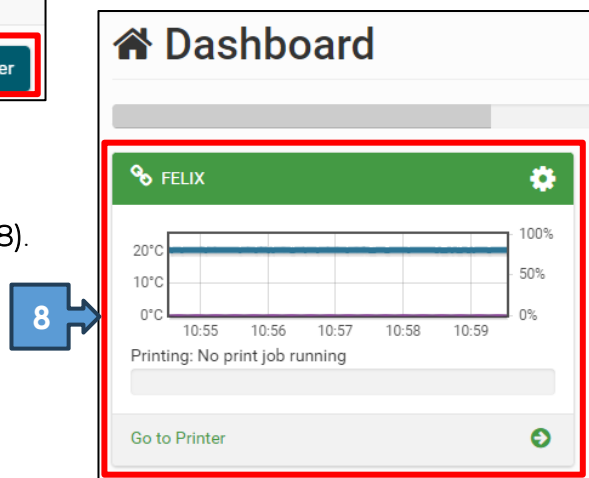
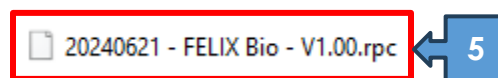
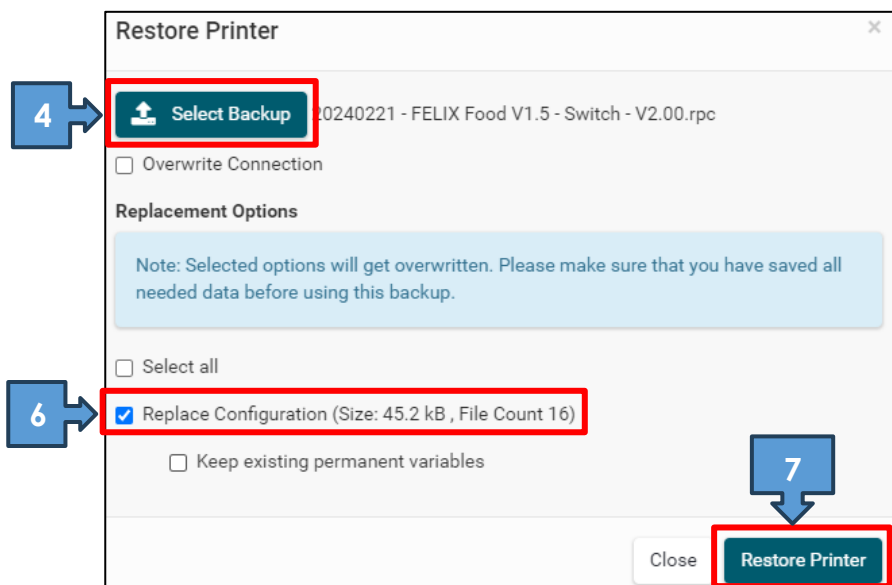
The RPC is important because it provide the touchscreen with all information and calibrations for the printer.

5.1 RPC upload

- Select the “home” button (1) on the top of the screen in the web interface.



- Select the “Gear” icon (2) in the right top of the green field.
- Select “Restore printer” or “Replace printer settings” (3).
- Select “Select Backup” (4) and choose the correct .rpc (5) for your machine. You can find this RPC in the software update package that can be downloaded from the felixprinters website (See page 1 of this manual).
- Make sure you check the box to “Replace Configuration” (6).
- After that select “Restore” (7).

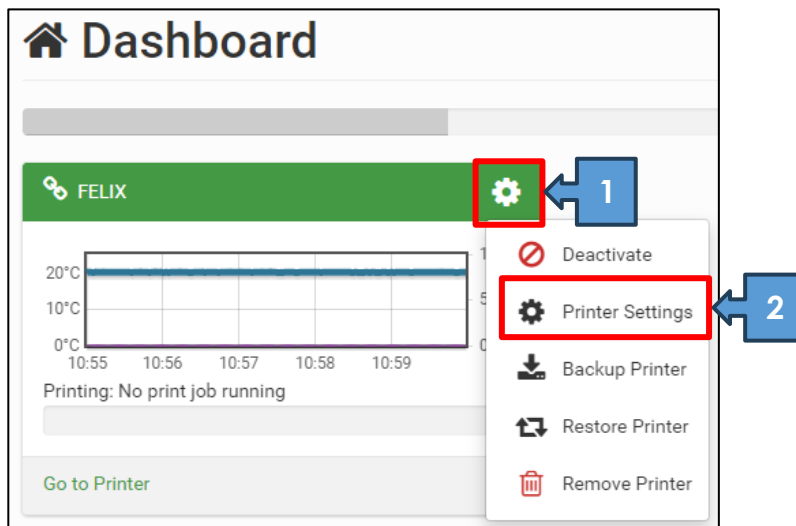


- Wait until the printer is showing a green status (8).

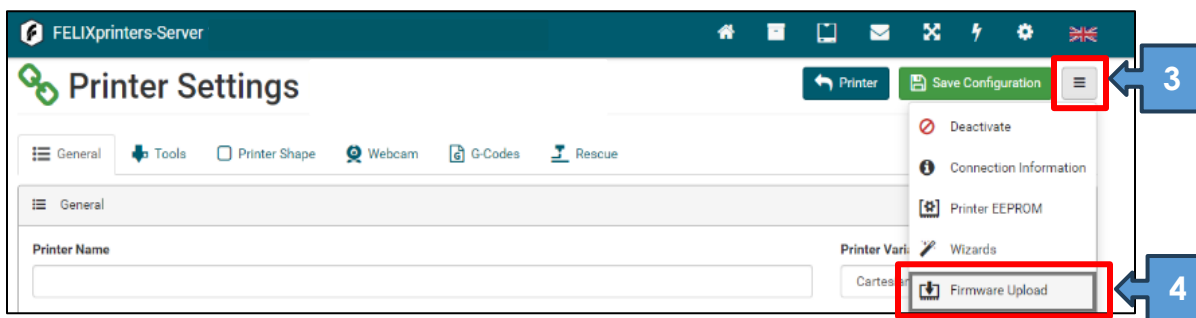
6 Upload printer firmware

6.1 Web interface

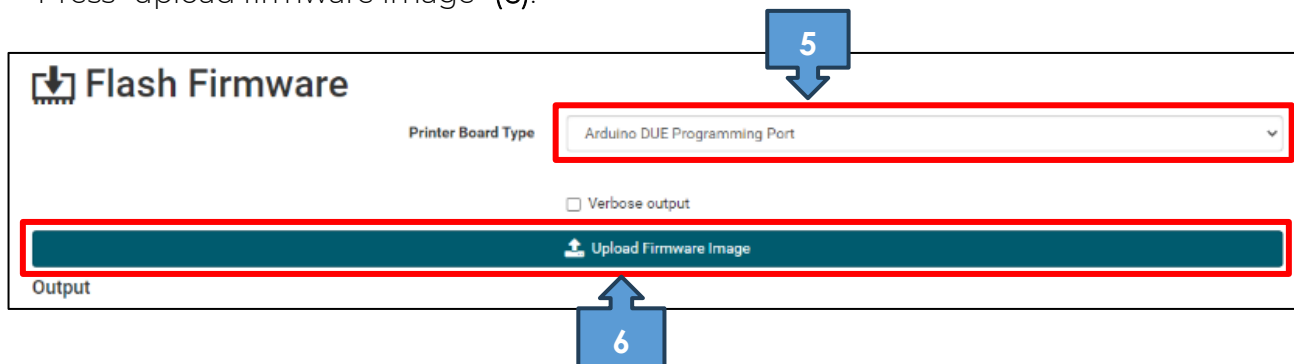
- Select the “gear” (1) icon and go to “printer settings” (2).



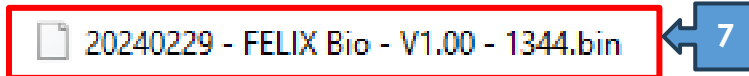
- Select the 3 lines (3) at the right top and select “firmware upload” (4).



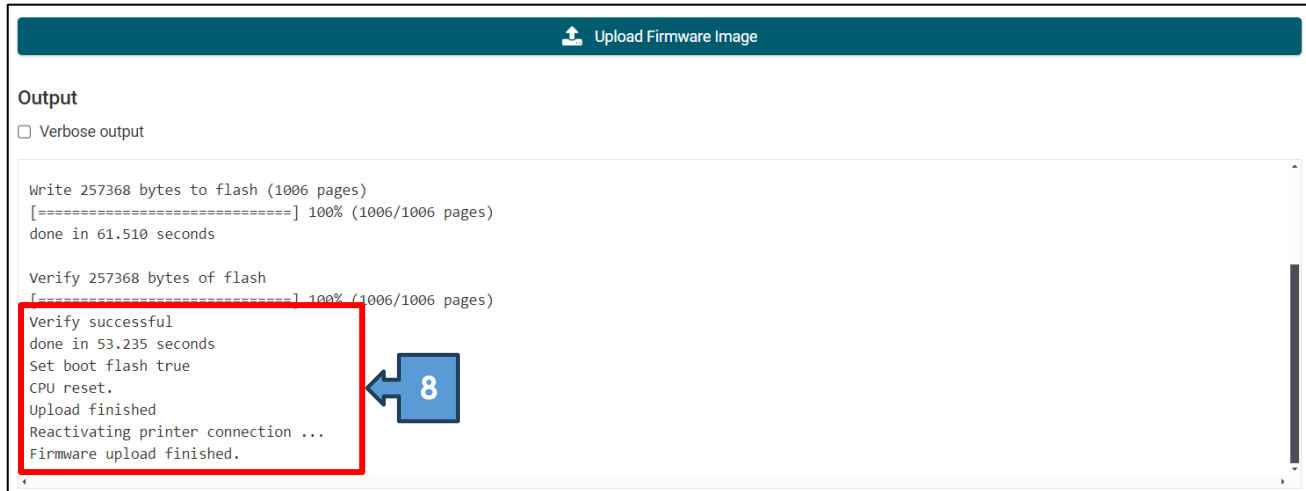
- Make sure “Printer Board Type” is set to “Arduino DUE Programming Port” (5).
- Press “upload firmware image” (6).



- Choose the correct firmware binary file (7). This depends on the printer you have.



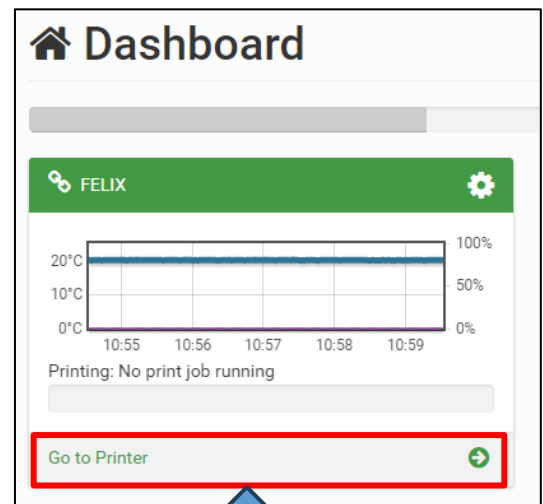
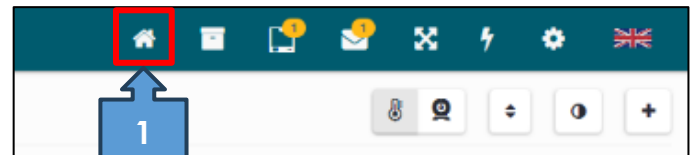
- Wait until you see in the display the firmware upload is finished (8).



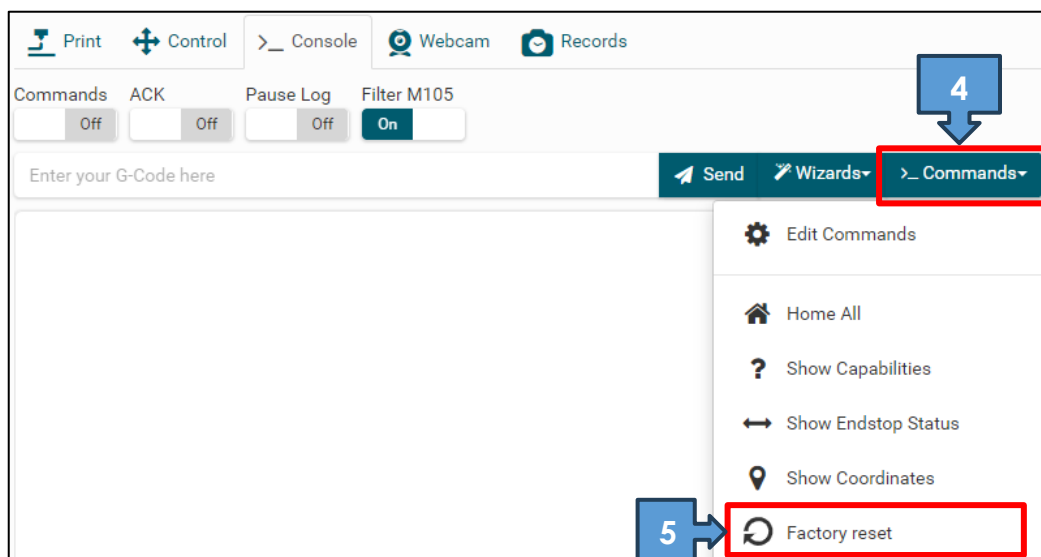
Do not turn off the machine until the update is complete! This can damage the mainboard!

6.2 Factory reset

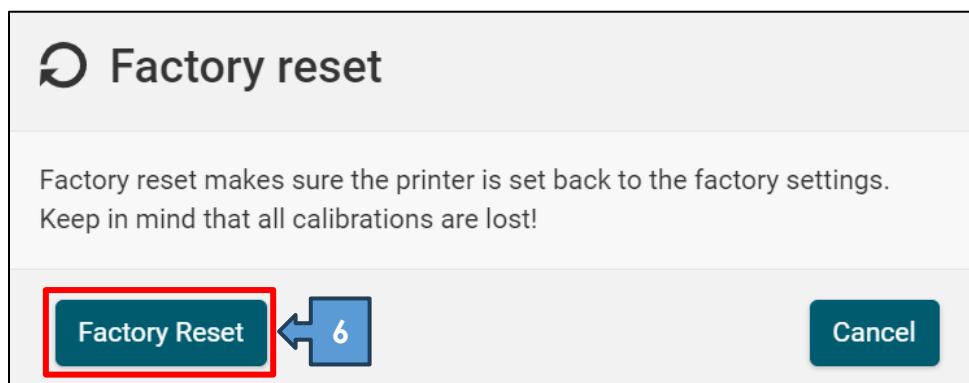
- Select the “home” button (1) on the top of the screen in the web interface .
- Select “Go to Printer”(2).
- Select “Console”(3).



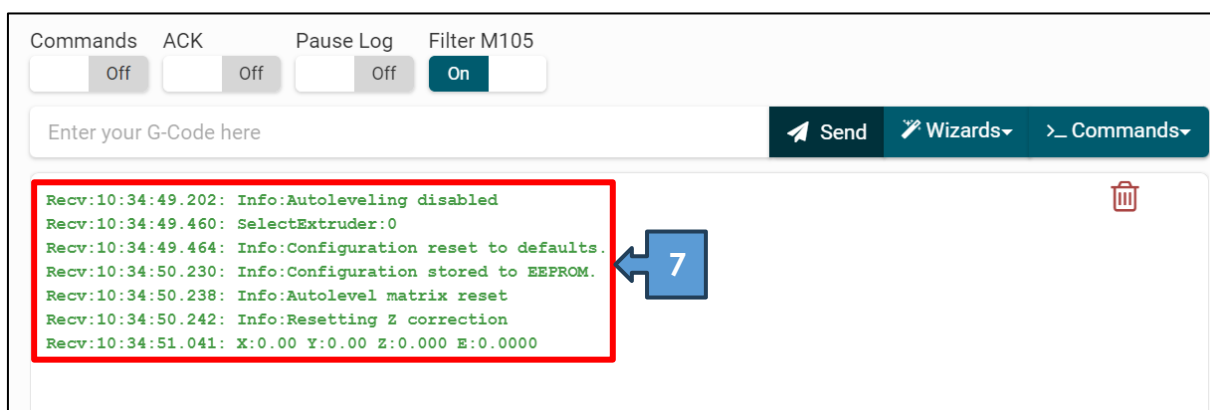
- Select "Commands" (4) and then select "Factory reset" (5).



- Select "Factory Reset" (6) to make sure all internal values are set to the factory settings. G-codes will stay intact.



- If everything has worked correctly you should get something similar like this information back from the console (7).



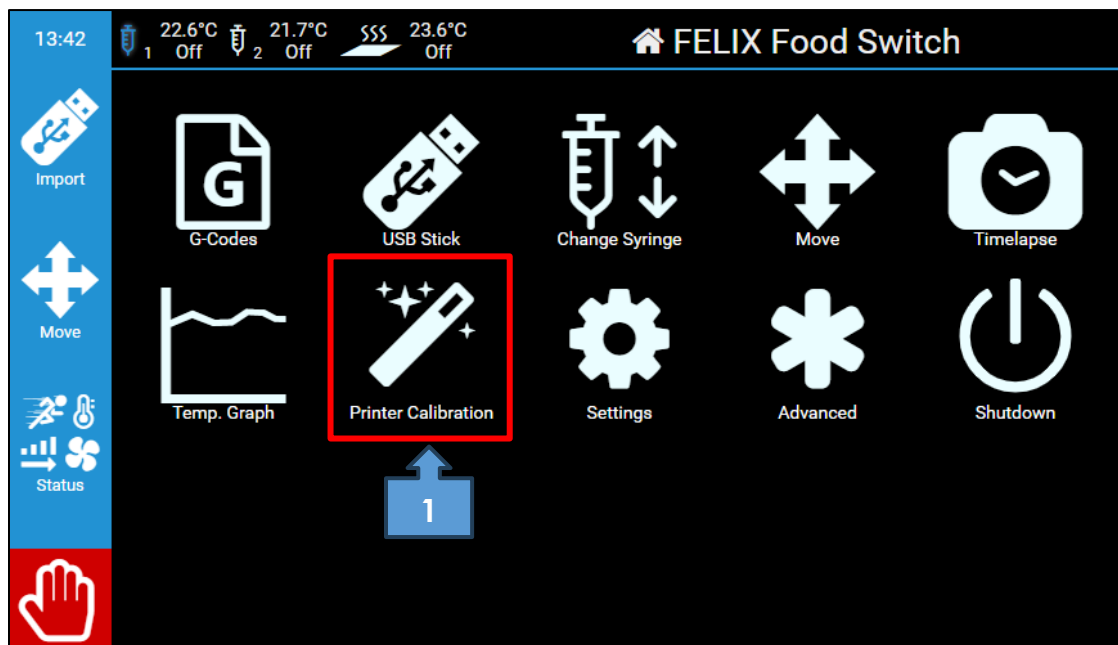
7 Calibrations

Info: Before starting a Dual head print, also perform the automatic XYZ calibration!

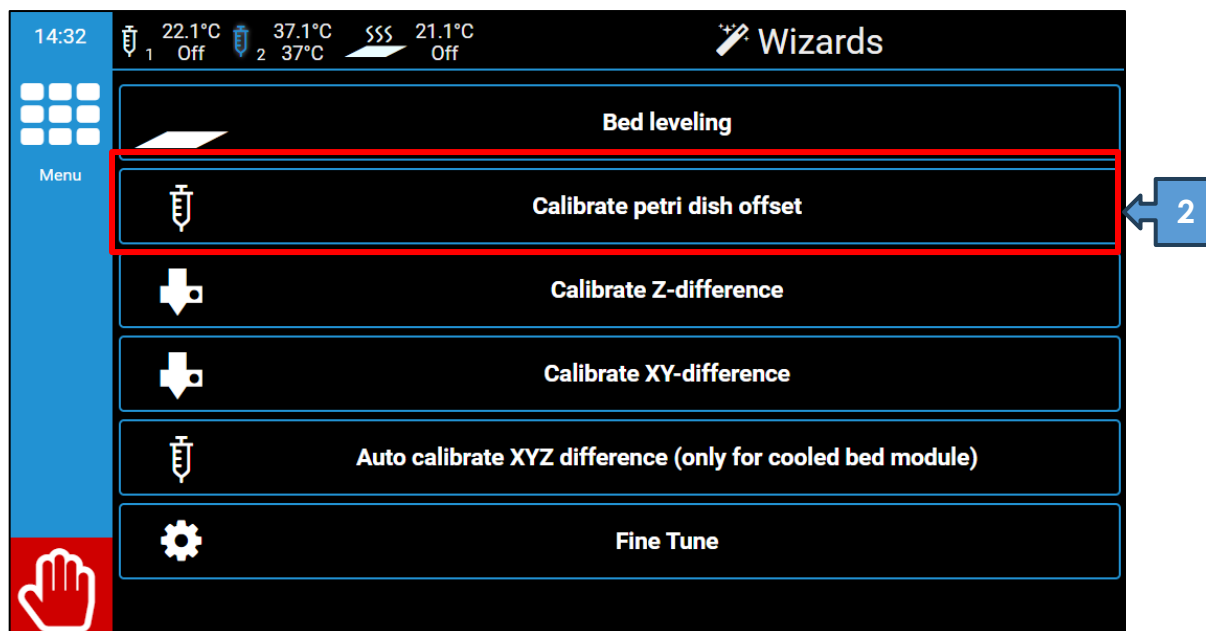
7.1 Calibrate petri dish offset

The petri dish offset calibration is used to calibrate the height offset of the object/petri dish where you want to print on. Make sure this calibration is done, otherwise it will start printing too close or too high.

- Select "Printer Calibration" (1).



- Select "Calibrate petri dish offset" (2).



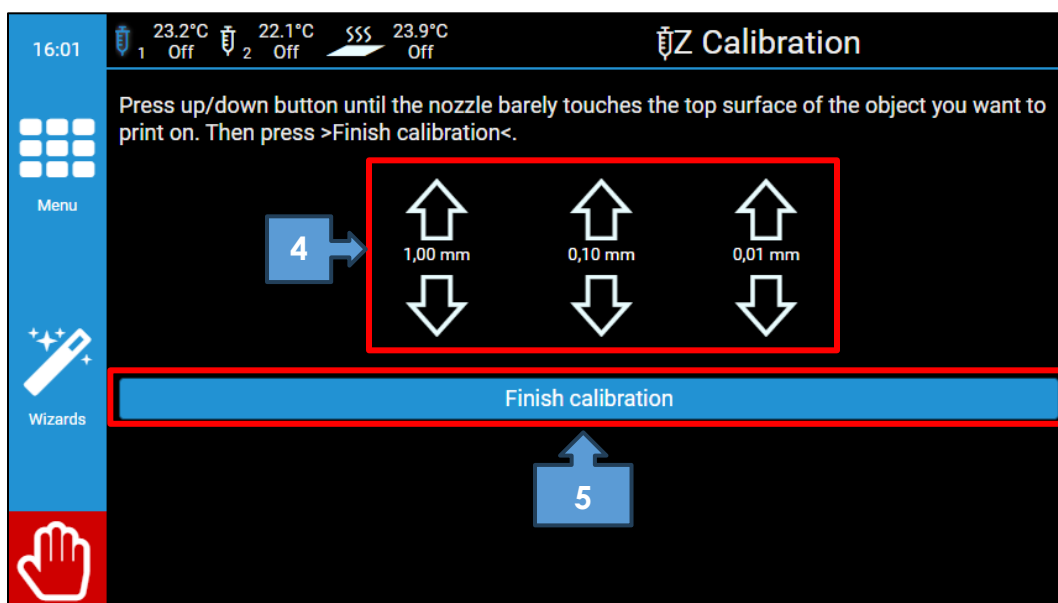
- Make sure there is a syringe inserted and you have placed the object where you want to print on. This can be a petri dish or just the cooled bed module etc.
- Select "Yes" (3) to start the calibration.



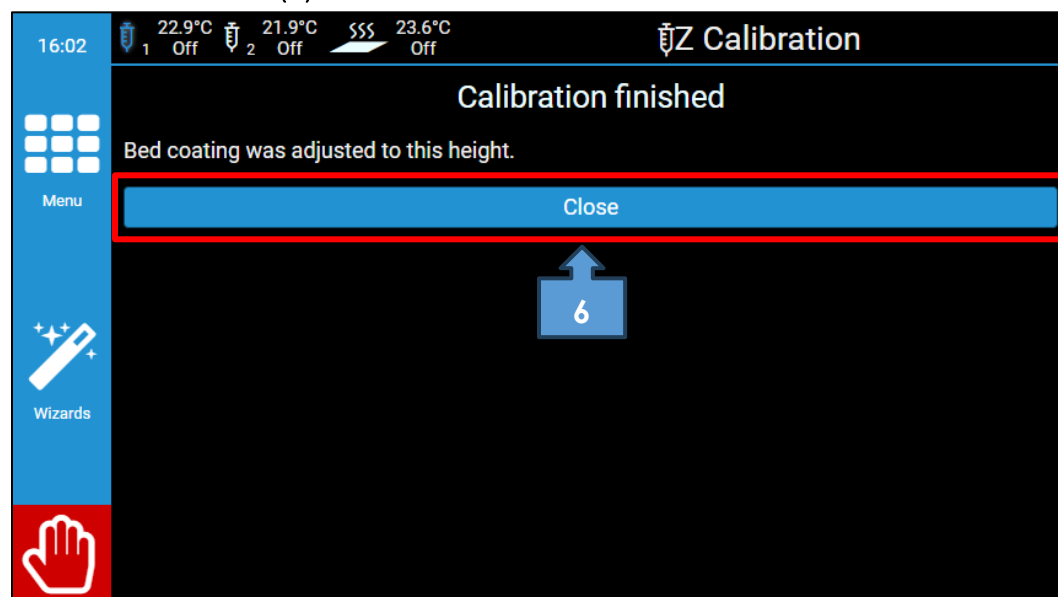
- The printer will position the syringe on the start calibration location. Please wait.



- Use the arrow on the touchscreen (4) to decrease the distance between the nozzle and the object where you want to print on.
- Make sure the nozzle just touches the object/petri dish (0.05mm – 0.02mm). When it does so, Select “Finish calibration” (5).



- When the calibration was successful, it will show it image below.
- Close the calibration (6).

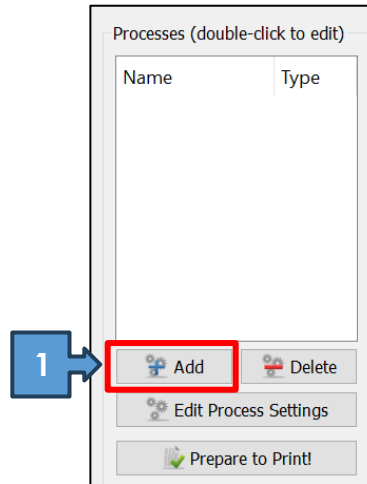


Contact FELIXprinters support if you receive a failed calibration message.

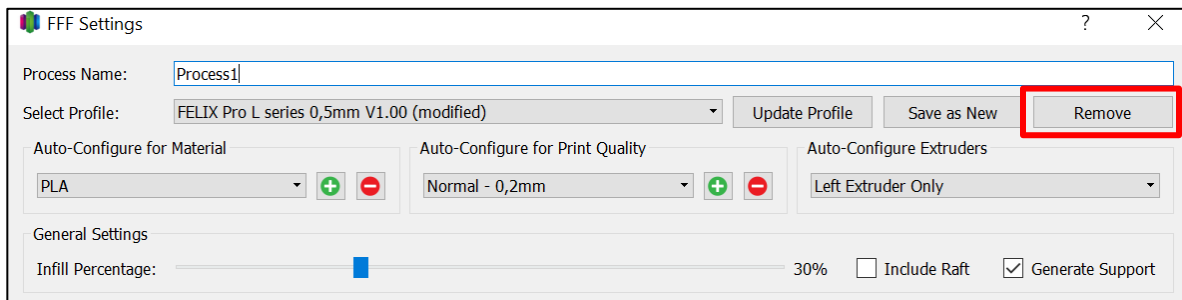
8 Upload slice profiles

8.1 Remove old profiles

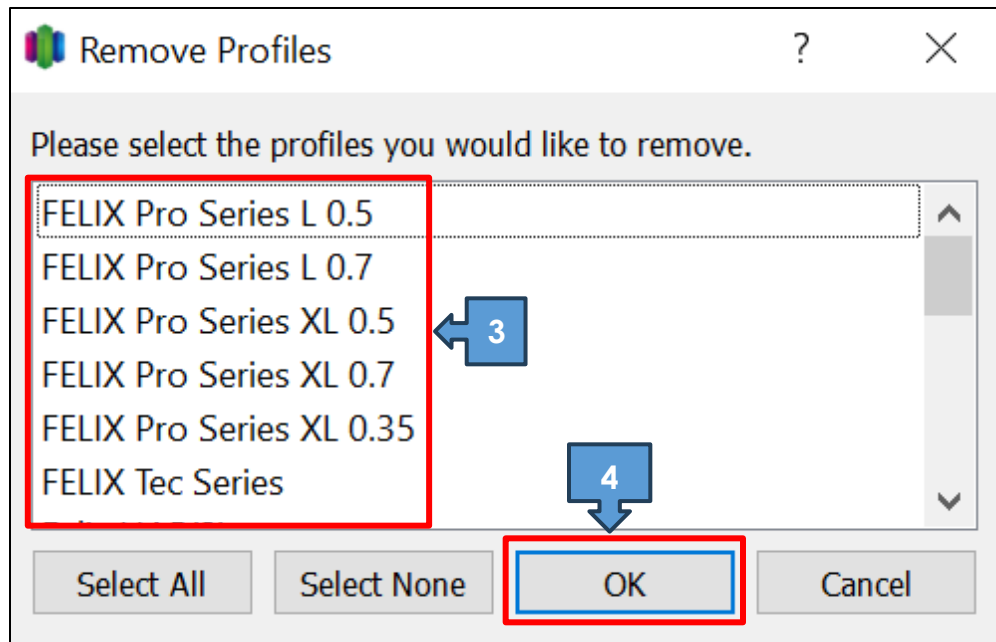
- Open Simplify3D.
- Select "Add" (1) to access the settings.



- Select "Remove" (2).

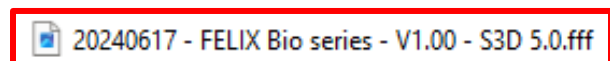


- Select all old slice profiles (3) you have installed. Write down all parameters or keep profiles with custom material recipes!
- Select "OK" (4) to confirm the removal of all selected profiles.

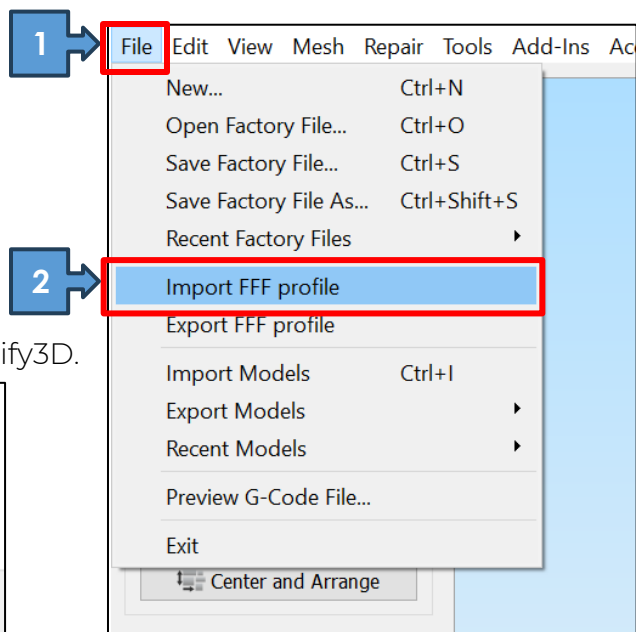
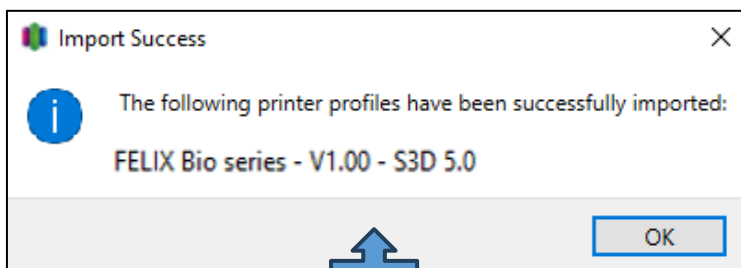


8.2 Import

- Select “File” (1) and “Import FFF profile”(2).
- Select the slice profile for the Bio series (3).

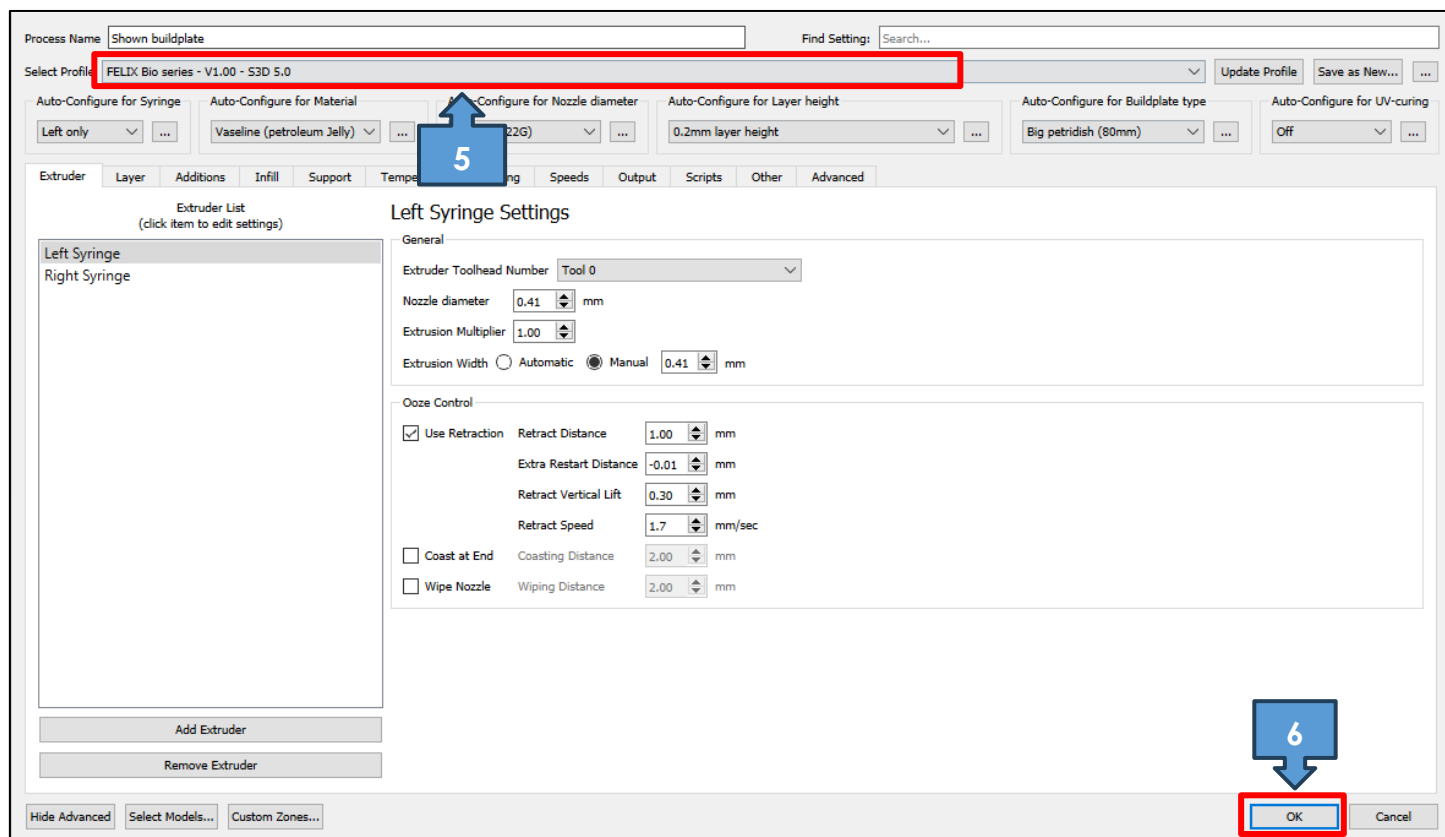


- Make sure you get this message (4) from Simplify3D.



8.3 Process

- Open a new process in simplify3D (see chapter 8.1 on page 17).
- Make sure to select the new imported printer profile (5) and hit “OK” (6).

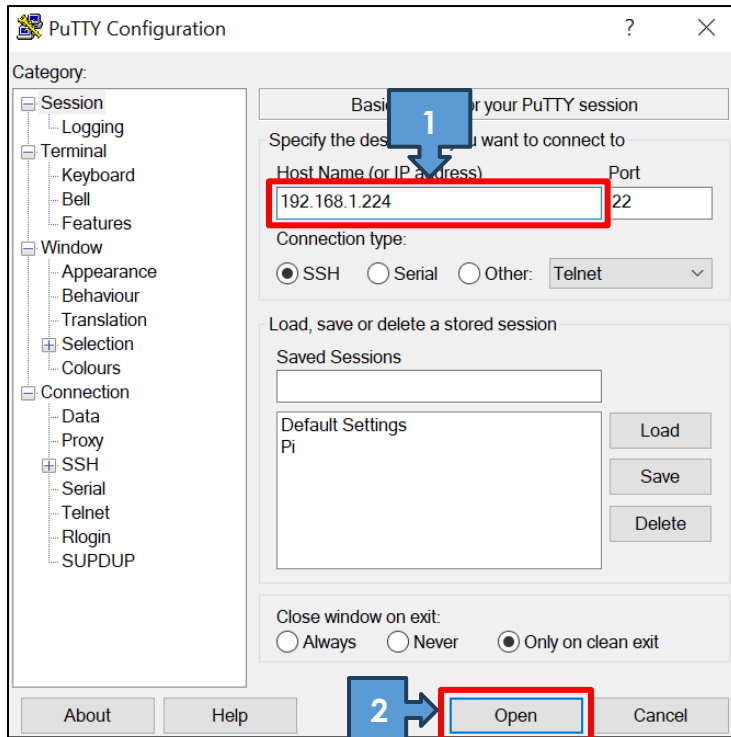


You have finished updating the simplify3D profiles. Load your own materials in the new profile.

9 Troubleshoot

9.1 Auto update for server does not work.

- Download “putty” using the link below. Choose the version that suits your system.
<https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html>
- Open putty and fill in the IP address of your printer (1) and select “Open” (2).
See chapter 4.1 on how to find your printers IP.



- A new prompt screen will appear.
- Log in with “pi” and password “pi”. **No capital letters!**
When you enter the password, it not displayed! Type in the password and press enter.



- After you have logged in you will get the screen that you can see below (3).

```
pi@FelixTouch: ~
login as: pi
Pre-authentication banner message from server:
Ubuntu 16.04 LTS

Default Login:
Username = pi
Password = pi

End of banner message from server
pi@192.168.1.47's password:
Welcome to Ubuntu 16.04.5 LTS (GNU/Linux 4.4.172-s5p6818 armv7l)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage
Last login: Fri Jun 7 09:56:34 2024 from 192.168.1.36
pi@FelixTouch:~$
```

- Select the text below (4) and click “ctrl+C” on your keyboard.

```
cd /tmp
sudo rm -r /usr/local/Felix
```

- Go back to Putty and click on your right mouse button to paste the text into Putty.
- It will ask for a password. Use “pi”. Keep in mind that it will not display when you type.
- Select “Enter” on your keyboard again.
- Select the text below (5) and click “ctrl+C” on your keyboard.

```
rm FelixServer.sh
wget http://download1.repetier.com/files/server/felix/FelixServer.sh
sudo bash ./FelixServer.sh
```

- Go back to Putty and click on your right mouse button to paste the text into Putty.
- The update will start now. Please wait! **Do not turn the printer off during this process!**
- When the screen to the right is displayed (6), the update is done.
- Select the text below (7) and click “ctrl+C” on your keyboard

```
sudo reboot
```

- Go back to Putty and click on your right mouse button to paste the text into Putty. Press enter.

```
pi@FelixTouch: /tmp
tar: Ignoring unknown extended header keyword 'LIBARCHIVE.xattr.com.apple.Finder
Info'
tar: Ignoring unknown extended header keyword 'SCHILY.fflags'
tar: Ignoring unknown extended header keyword 'LIBARCHIVE.xattr.com.apple.Finder
Info'
tar: Ignoring unknown extended header keyword 'SCHILY.fflags'
tar: Ignoring unknown extended header keyword 'LIBARCHIVE.xattr.com.apple.Finder
Info'
tar: Ignoring unknown extended header keyword 'SCHILY.fflags'
tar: Ignoring unknown extended header keyword 'LIBARCHIVE.xattr.com.apple.Finder
Info'
(Reading database ... 78715 files and directories currently installed.)
Preparing to unpack repetier-server (1.4.3) over (1.4.3) ...
Uninstall Repetier-Server
Removed symlink /etc/systemd/system/multi-user.target.wants/RepetierServer.servi
ce.
Unpacking repetier-server (1.4.3) over (1.4.3) ...
Setting up repetier-server (1.4.3) ...
Install Repetier-Server
Created symlink from /etc/systemd/system/multi-user.target.wants/RepetierServer.
service to /lib/systemd/system/RepetierServer.service.
Processing triggers for systemd (229-4ubuntu21.11) ...
Processing triggers for ureadahead (0.100.0-19) ...
pi@FelixTouch: /tmp$
```

You can close putty now and go on to chapter 5 update XML/RPC.

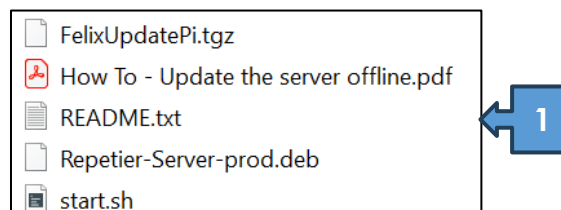
9.2 No active LAN/WLAN connection on the printer

9.2.1 Prepare a USB-stick or SD-card.

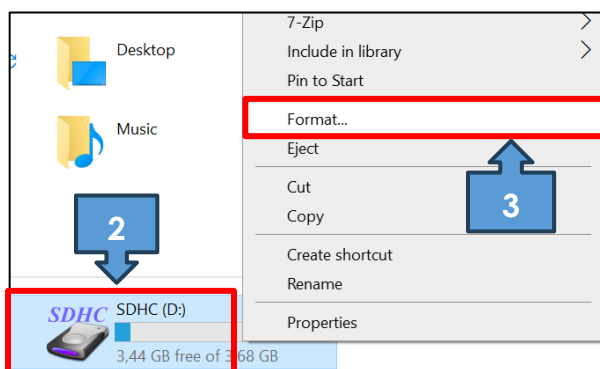
Some printers are not connected to the internet. Use the steps below to perform an offline update for the server. For this way of updating, you need an empty USB.

- Go to the FELIXprinters website and download the “[Offline USB Server Updater \(1.4.18\)](#)” in the troubleshooting section.
(1. Pro Series → 6. FELIX Bio → 3. Troubleshooting)
https://shop.felixprinters.com/downloads_felixprinters

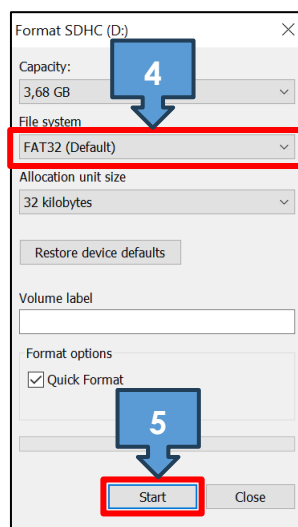
- In this file you find the 5 files shown right (1).



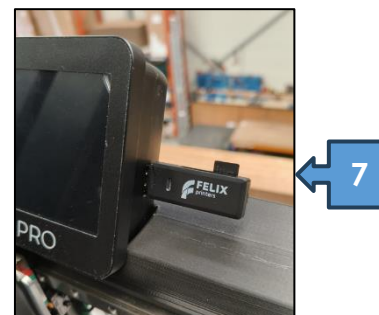
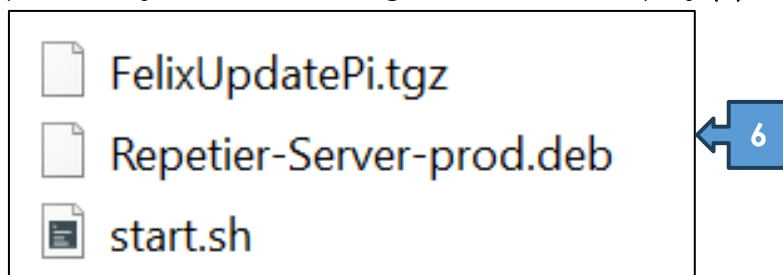
- Find yourself a USB with at least 60MB of free space. Make sure to make a backup of the files that on the USB stick or you will lose them.
- Select the USB with right mouse button (2) and select “Format...” (3).



- Make sure to select “FAT32” (4) for the file system.
- Select “Start” (5).



- When this is done, copy the 3 files shown below (6) from the “Offline USB Updater” map you downloaded earlier, to the USB that you have prepared. Insert the USB into the USB port that you can find at right side of the display (7).



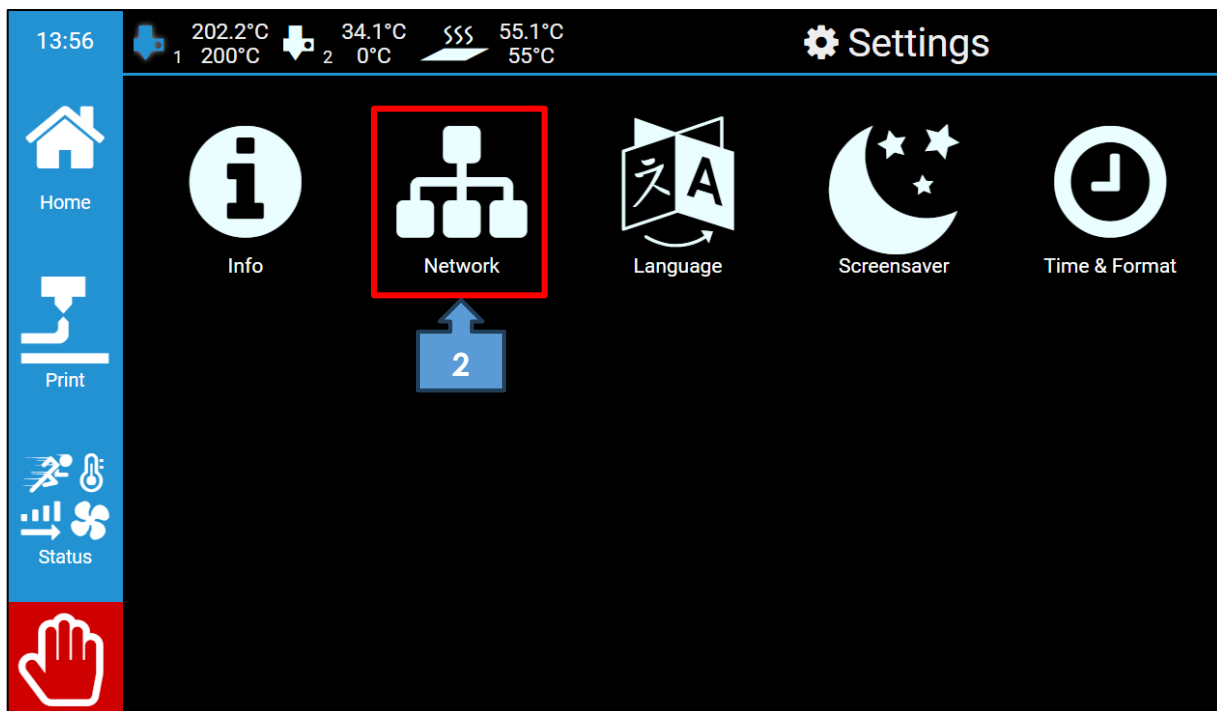
9.2.2 Setting up an access point

If you already have access to the web interface of your printer with a laptop, you can skip this step and continue to chapter 9.2.2

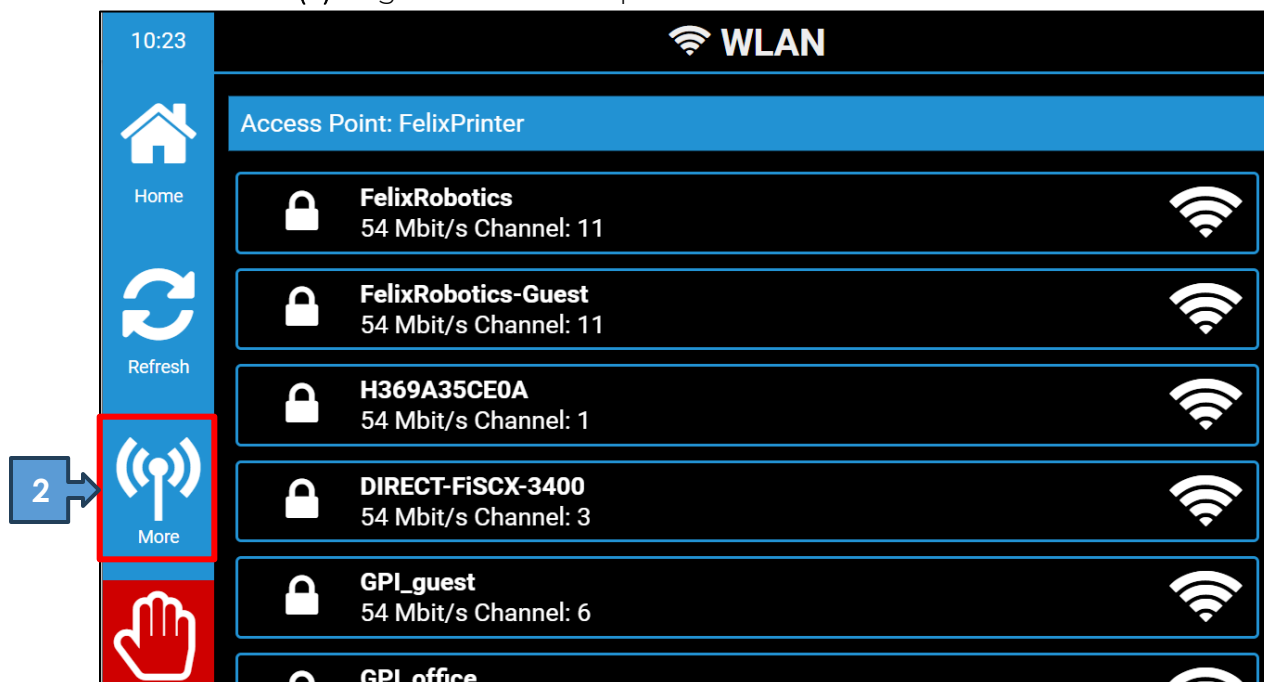
- Make sure you can connect to the printer by connecting it to a network or setting up an access point. Follow the steps below to set up an access point.
- Select “Settings” (1) on your touchscreen.



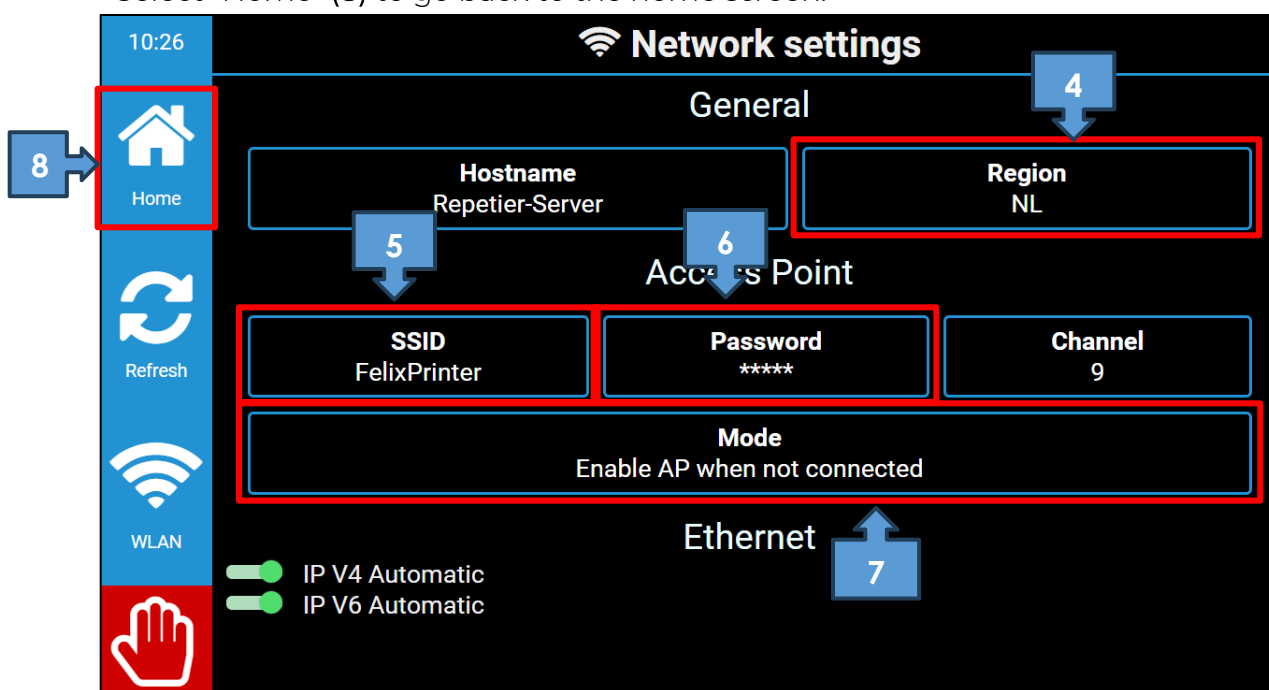
- Select “Network” (2).



- Select "More" (3) to go to the access point section.



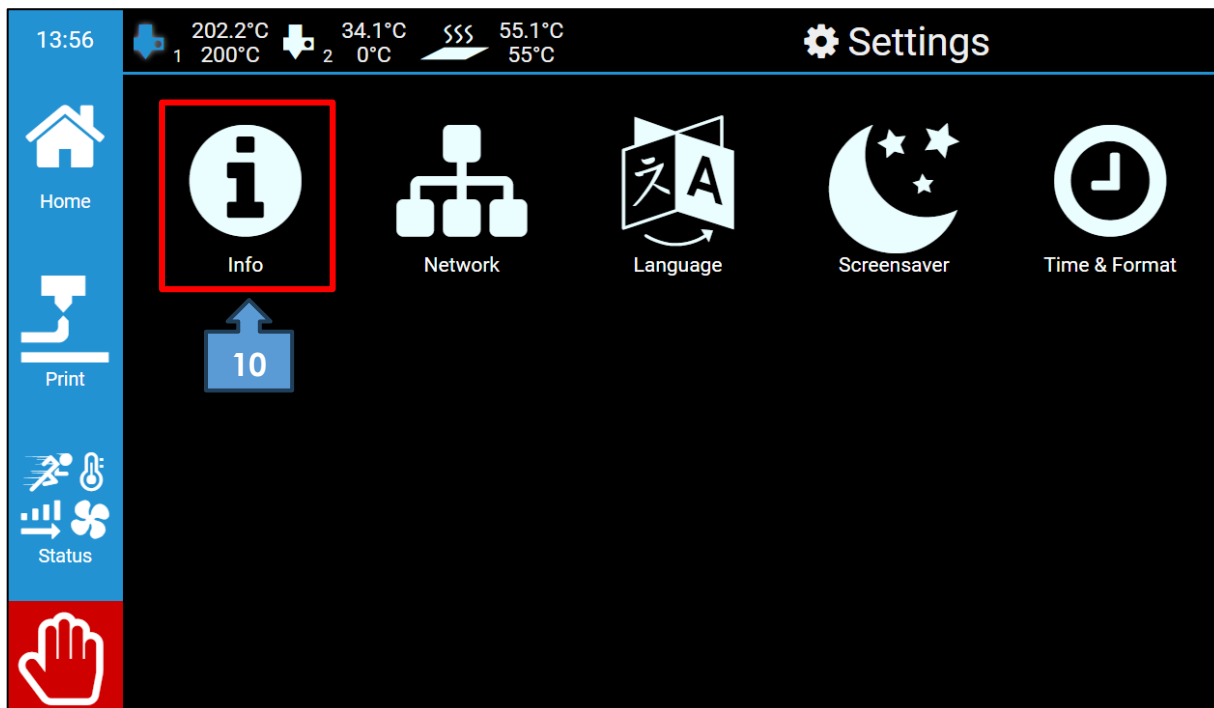
- Select your region (4).
- Select a name (5).
- Select a password (6). You need this password to connect to the printer through Wi-Fi.
- Select "Always enable AP" (7).
- Give the printer some time to set up the access point.
- Select "Home" (8) to go back to the home screen.



- Select "Settings" (9) to go to the settings menu.



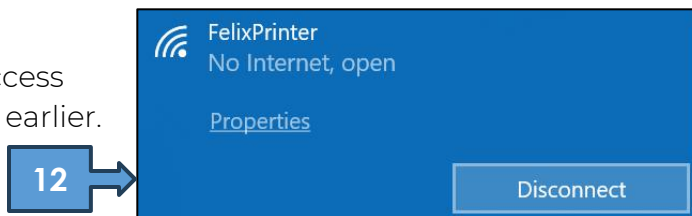
- Select "Info" (10) to show the current version of the server and the IP address.



- When you set up an access point the IP is always 10.10.10.1 (11).



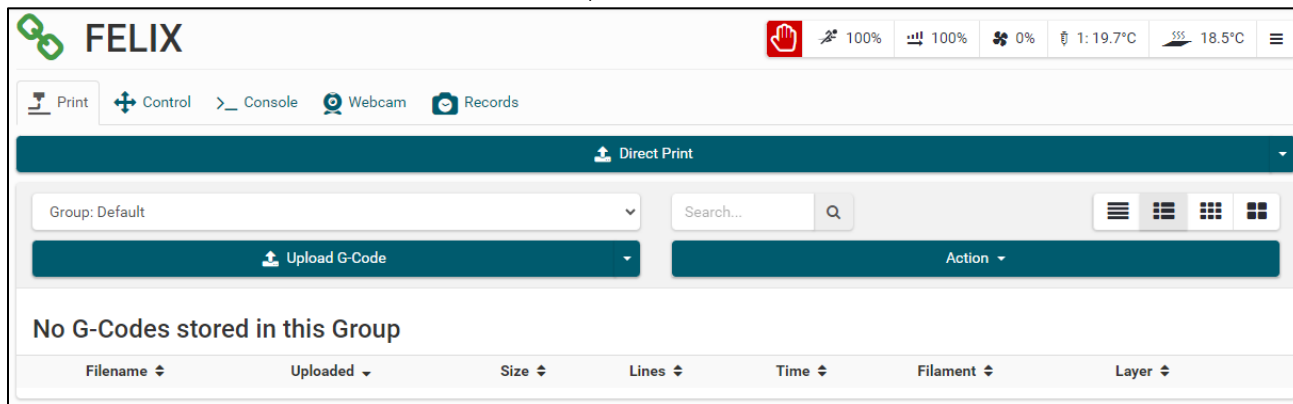
- Open your network setting on your PC/laptop (12) and connect to the access point using the password you setup earlier.



- Check if the connection is established by filling in the IP address into a web browser (13) of you PC/laptop.



- You should see the web interface of the printer.

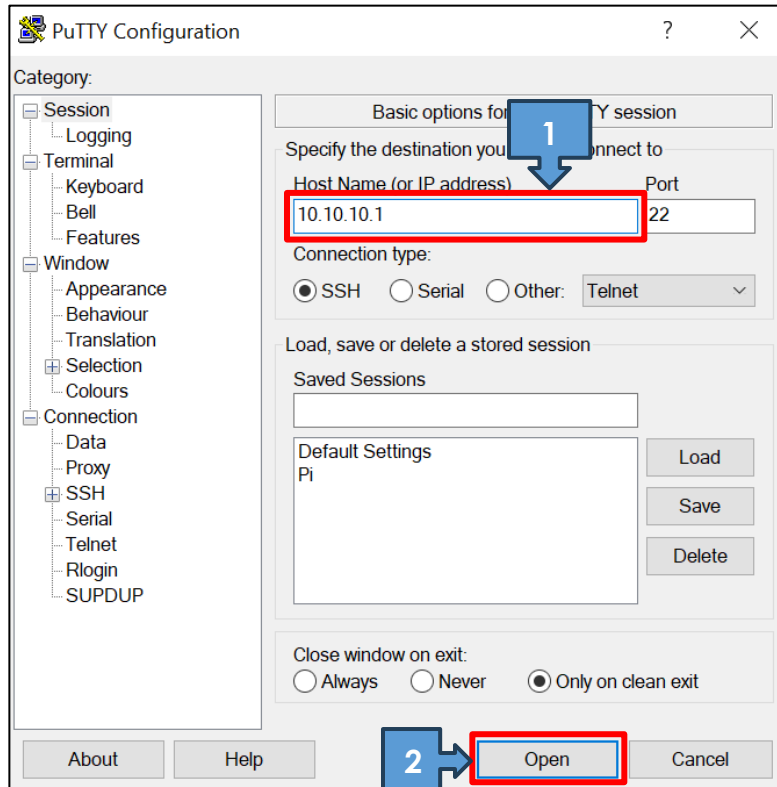


9.2.3 Updating the server offline

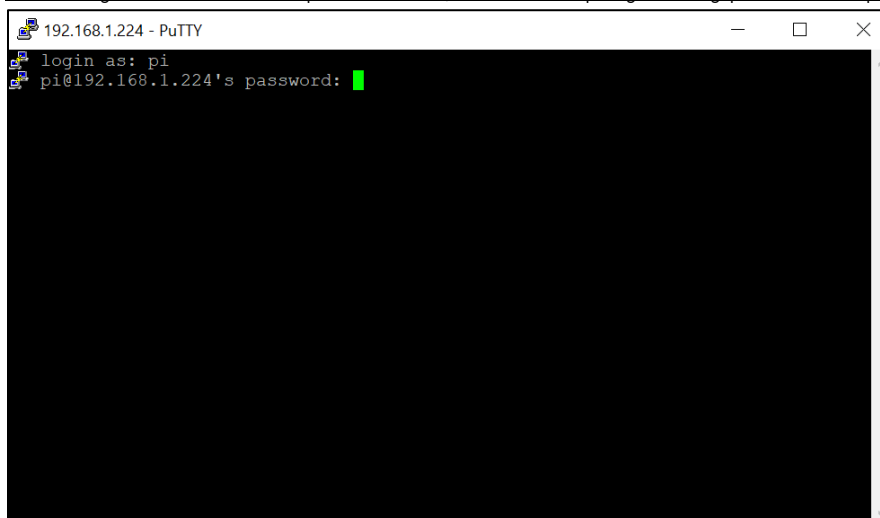
- For the next step, download “putty” using the link below. Choose the version that suits your system.

<https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html>

- Open putty and fill in the IP address (1) of the printer and select “Open” (2).



- A new prompt screen will appear.
- Log in with “pi” and password “pi”. No capital letters!
When you enter the password, it not displayed! Type in the password and press enter.



- After you have logged in you will get the screen that you can see below (3).

```
pi@FelixTouch: ~
login as: pi
Pre-authentication banner message from server:
| Ubuntu 16.04 LTS
|
| Default Login:
| Username = pi
| Password = pi
|
End of banner message from server
pi@192.168.1.47's password:
Welcome to Ubuntu 16.04.5 LTS (GNU/Linux 4.4.172-s5p6818 armv7l)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage
Last login: Fri Jun  7 09:56:34 2024 from 192.168.1.36
pi@FelixTouch:~$
```



- Select the text below (4) and click “ctrl+C” on your keyboard.



```
cd /media/flash
sudo bash ./start.sh
```

- Go back to Putty and click on your right mouse button to paste the text into Putty.
- The update will start now. Please wait! **Do not turn the printer off during this process!**
- When the screen to the right is shown (5), the update is done.

- Select the text below (6) and click “ctrl+C” on your keyboard

```
sudo reboot
```



- Go back to Putty and click on your right mouse button to paste the text into Putty

```
pi@FelixTouch: /tmp
tar: Ignoring unknown extended header keyword 'LIBARCHIVE.xattr.com.apple.Finder
Info'
tar: Ignoring unknown extended header keyword 'SCHILY.fflags'
tar: Ignoring unknown extended header keyword 'LIBARCHIVE.xattr.com.apple.Finder
Info'
tar: Ignoring unknown extended header keyword 'SCHILY.fflags'
tar: Ignoring unknown extended header keyword 'LIBARCHIVE.xattr.com.apple.Finder
Info'
tar: Ignoring unknown extended header keyword 'SCHILY.fflags'
tar: Ignoring unknown extended header keyword 'LIBARCHIVE.xattr.com.apple.Finder
Info'
(Reading database ... 78715 files and directories currently installed.)
Preparing to unpack Repetier-Server-prod.deb ...
Uninstall Repetier-Server
Removed symlink /etc/systemd/system/multi-user.target.wants/RepetierServer.servi
ce.
Unpacking repetier-server (1.4.3) over (1.4.3) ...
Setting up repetier-server (1.4.3) ...
Install Repetier-Server
Created symlink from /etc/systemd/system/multi-user.target.wants/RepetierServer.
service to /lib/systemd/system/RepetierServer.service.
Processing triggers for systemd (229-4ubuntu21.11) ...
Processing triggers for ureadahead (0.100.0-19) ...
pi@FelixTouch: /tmp$
```



You can close putty now and go on to chapter 5 update XML/RPC.

If you are unable to continue or have any questions, you can check at the support section of our website or you can contact us directly:

Website: www.felixprinters.com/support

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Kind regards,

FELIXprinters