ACKURETTA

SOL

User Manual

Legal

Document Version: 1.2

Product Version: SOL (Firmware version 0.1.4-fd7ef)

Release Date: 29th of October, 2021

Contents

About Your Printer

SOL is a highly precise chairside 3D printer designed to provide a premium ownership experience for every type of user. Equipped with auto-calibration and 100+ precalibrated materials, SOL offers a simpler learning curve for beginners while providing the same level of accuracy and consistency that professionals are looking for. SOL is a networked device and must be connected to the internet for operation.

1.1 Specifications

Table 1: Printer Specifications

3D printing technology	Monochrome LCD Panel
Machine size	271 (L) x 292 (W) x 416 (H) mm
Weight	15 Kg
Print size	128 x 80 x 140 mm
XY resolution	49 µm
Slice thickness	30 ~ 150 µm
Resin wavelength	385 ~ 405 nm
Power supply	110 ~ 240 V, 50 ~ 60 Hz

1.2 Features

- 49-micron pixel size for super smooth finish
- High-speed printing up to 4.5 cm/hr
- Anti-drip LCD protection
- Automated cloud-based updates
- Replace most parts in under 15 minutes
- 100+ Validated Materials
- Minimal learning curve
- 2-year Warranty
- Designed for chairside and same-day digital dentistry

1.3 Package contents

- 1x replacement LCD screen (i.e. print screen)
- 1x extra vat
- 1x Ethernet cable
- 1x power cable
- 1x Wi-Fi dongle
- 2-year warranty

1.4 Safety Instructions

Please note that this printer is to be used by trained personnel only. You must read this manual and all notices, warnings and safety instructions received with your printer before operating the printer to ensure your safety.

To guard against injury, basic safety precautions should be observed, including the following:

Personal Protective Equipment (PPE)

You must use personal protective equipment (PPE) during the operation of this printer and when handling 3D printing materials.

Ultraviolet Radiation

Avoid exposure to direct or reflected ultraviolet rays. Ultraviolet rays are harmful to the eyes and skin.

Ultraviolet light may break down plastic, rubber, or other non-metallic materials, can fade colors, and can be damaging to plant life. Shield all plastic, rubber, or other non-metallic parts, plant life, etc. which may be exposed to direct or reflected ultraviolet rays.

Electrical Shock Hazard

Always unplug the printer before performing any service or maintenance.

Do not operate without a proper electrical ground.

To prevent the risk of severe or fatal electrical shock, special precautions must be taken. Equipment should be plugged into an approved Ground Fault Circuit Interrupt (GFCI) receptacle.

Do not operate equipment if the power cord and/or plug are damaged, or if any other damage to the unit is visible or suspected.

Other

Do not alter the construction or design. Do not remove safety devices, i.e. the acrylic hood.

Do not use equipment for anything other than its intended purpose (as described in this user manual).

This printer is intended for indoor use only.

Getting started

2.1 Unboxing your printer

Step 1 Open the main carton. There are two accessory boxes and four bags on top of the printer.

Step 2 Remove the accessory boxes, four bags, and cardboard tray from the top of the printer and put them in a safe place.

Step 3 Lift the printer out of the main carton by the handles on the internal packaging and put it on a flat workspace.

Step 4 Move the handles away from the printer.

Step 5 Lift the printer out of the internal packaging.

Tip: When moving the printer, always hold the bottom of the printer.

- Keep the printer in a vertical position and avoid tilting it backwards to avoid bending or displacing critical components.

Step 6 Remove the plastic wrap and the Quick Start Guide.

Step 7 Open the hood and make sure the vat and build platform are in place.

2.2 What you need

In addition to the contents of the main carton, you must have several other items in order to use your printer effectively and make a complete print. This section outlines the items that you must acquire in addition to the items shipped with the printer.

- Computer – You must have a computer that meets the following minimum requirements in order to run the Alpha 3D software which is necessary for creating the print file.

Table 1: Computer Specifications

Minimum	Recommended
Intel i3 2.0 GHz dual-core CPU or AMD Athalon 2.0 GHz dual-core CPU	Intel i7 2.6 GHz quad-core CPU or AMD Phenom II X4/ X6 at 2.6 GHz quad-core CPU
Dedicated GPU with 1 GB RAM	NVidia GeForce 830 or AMD Radeon R7 M340
4 GM RAM	8 GB RAM
1 GB disk space	2 GB of disk space
Windows 7 SP1, 8.1, or 10	Windows 7 SP1, 8.1, or 10
1600 × 900 display resolution	1920 × 1080 display resolution

- Resin – Your printer is tested with all Ackuretta CURO- resins, but is designed to have an open materials system so you can select from a broad range of 385-405 nm resins.
- Safety equipment – You should always wear chemical-resistant gloves when handling photopolymer resins. Ackuretta also strongly recommends wearing a respirator or face mask when handling resins for an extended period of time, and wearing UV-protective glasses when working with the internal components of the printer.

- Washer – A bath to remove resin and residue that may be covering the printed piece when the print process is complete.
- Cleaning alcohol – Most resins require either isopropyl alcohol (99% solution) or ethyl alcohol (95% solution) for cleaning. Please contact your resin distributor or refer to the related documentation for information about the proper cleaning alcohol to use. You can also add the cleaning alcohol to the washer or bath.
- Spray bottle for cleaning alcohol – Use the spray bottle to clean the part, your equipment, and/or workspace.
- Alcohol wipes – Another method for cleaning your prints and workspace.
- Air blower or compressed air – Use the compressed air to remove alcohol and to clean the part, your equipment, and/or workspace.
- Rubber or silicone spatula – Use this to move or mix the resin in the vat. Never allow sharp or metallic objects to touch the vat.
- Scraper or knife – A sharp blade is useful for removing the part from the build platform. Dull scrapers can damage the build platform.
- UV box – Ackuretta resins are all tested with the CURIE and Ackuretta UV box. Other resin suppliers usually recommend different UV boxes for curing.
- Rubber mallet – A mallet is useful for removing the part from the build platform.
- Microfiber cloth – Cleaning the print screen
- Polishing kit – Polishing the surface of your print to produce the desired finish.

Make sure you have a safe and legal place and method for removing unused resin.

2.3 Connecting your printer to a network

Connect your printer to a network so that you can get access to the browser console and start the print process from an Internet browser.

Note: Your SOL 3D printer must be connected to the Internet to start the print process.

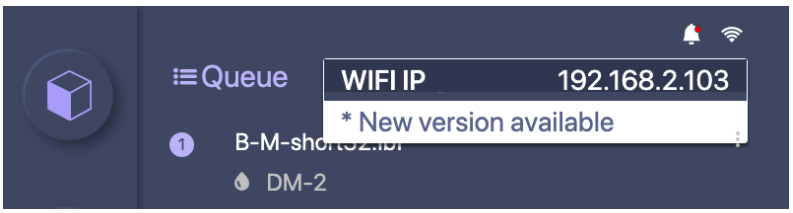
There are two options for connecting your printer to your network:

1. A wired connection (i.e. LAN/Ethernet); and
2. a wireless connection (i.e. Wi-Fi).

Please refer to “Connecting to a Network” on page 14 for more information.

2.4 User interface

When you turn on your printer, the machine takes a moment to load and then shows the **Home** screen. The **Home** screen shows icons that indicate Wi-Fi signal strength (if you are connected to a wireless network), the printer IP address, and whether there are any notifications.



You access the main functions and settings via the buttons on the left side of the **Home** screen.

You also have the option to operate your printer via a networked computer (i.e. the browser console). Please refer to “Printing via the browser console” on page 20 for more information.

2.4.1 Home Screen

There are three buttons on the left side of the **Home** screen. From top to bottom, they are the **Print**, **Clean Vat**, and **Settings** buttons.

Table 2: Home Screen Buttons

Button	Description
Print	The **Print** screen is the primary screen for uploading files and starting the print process. There are three tabs on the **Print** screen: **Queue**; **History**; and **USB**.
Clean Vat	Use the Clean Vat function whenever the print fails so that you can easily remove pieces of prints that did not stick to the build platform during the print process.
Settings	All of the settings to configure, control, and customize your printer are accessible via the **Settings** button.

2.5 Print Screen

Press the **Print** button to show the **Queue**, **History**, and **USB** tabs at the top of the screen. You load your print files from these tabs.

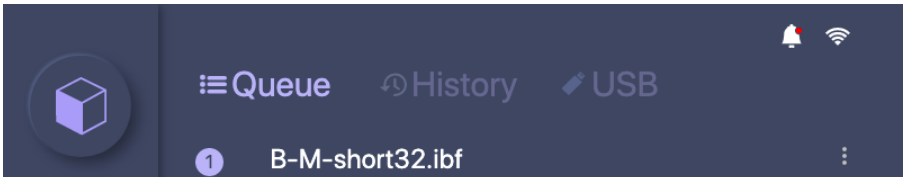


Table 3: Print Screen Tabs

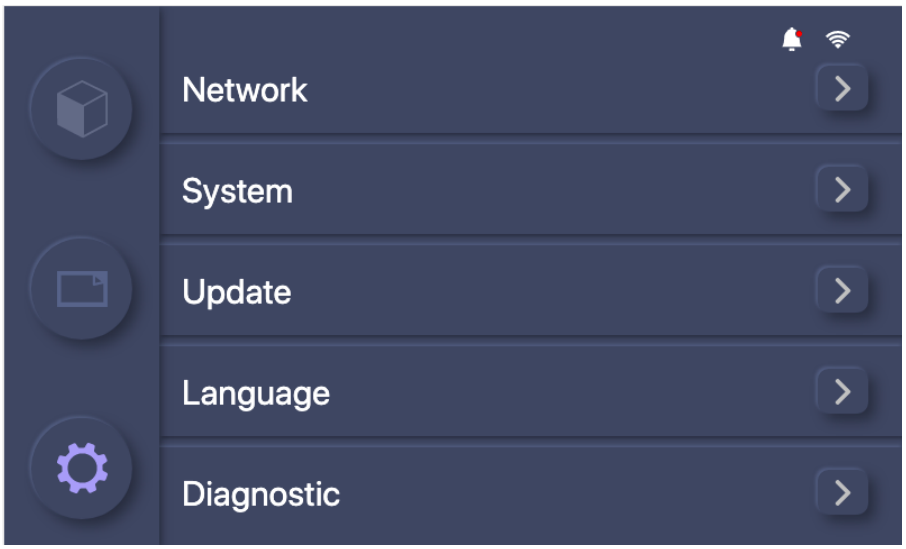
Tab	Description
Queue	A list of print files that are loaded on the printer and ready to print.
History	A list of print files for completed print jobs.
USB	The file directory of an attached USB device. You can select a print file on this tab and add it to the Queue

2.6 Clean Vat Screen

You can use the Clean Vat function to remove pieces of a print that did not securely attach to the build platform during the print process. Please refer to “Using the Clean Vat function” on page 39 for more information.

2.7 Settings Screen

The Settings screen gives you access to system-wide settings and information.



All the same functionality and information is also available via a web browser when a computer and your printer are connected to the same network.

Table 4: System Settings

Settings	Description
Network	Connect to either a wired or wireless network. For instructions on how to set up a network connection, see “Connecting to a Network” on page 14.
System	View system information, change your printer’s name, and choose whether to share diagnostic information with Ackuretta.
Update	Update the printer firmware and material settings. Please refer to ““Updating Settings” on page 24.
Language	Select your preferred language for the user interface.
Diagnostics	Use the Diagnostics functions to determine the source of any printer issue.

2.8 Browser console

The browser console is essentially the same as the printer console. To get access to the browser console, you must connect your printer to a network and key the printer’s IP address into the address bar of a browser on a connected computer.

Setting up Your Printer

3.1 Setup environment

Consider the following when choosing where to set up your printer and your workspace.

3.1.1 Temperature: 18° - 25° C

Keep your printer and your resins in a dry, temperature-controlled room around 22° C (72° F).

Resins become more viscous when they are too cold and become very thin in hot temperatures. If the environment is hotter than 35° C (95° F), resins may overcure or may melt during the print process.

3.1.2 UV-Filtered Lighting

The hood on the SOL protects the resin from ambient lighting while it is closed. As you use the printer, the hood will be opened many times, and the resin will be exposed to UV light.

To protect the resin, set up the printer in a place where the lighting is controllable or covered by a UV filter. Similarly, use the same UV filtering in your finishing space and your resin storage location.

3.1.3 Ventilation

Resins and cleaning alcohol evaporate over time. These substances can be corrosive to other equipment and may be harmful if inhaled over an extended period of time.

Keep your printer, resin, and storage space well ventilated at all times. Keep the hood closed whenever possible and limit any exposure to resins.

3.2 Connecting to a Network

Note: Your SOL 3D printer must be connected to the Internet to start the print process.

Connect your printer to a network so that you can get access to the browser console where you can manage the queue and view specific information about your printer.

There are two options for connecting your printer to your network:

1. A wired connection (i.e. LAN); and
2. a wireless connection (i.e. Wi-Fi).

3.2.1 Connecting to a wired network

The computer automatically detects your printer when you connect them both to the same network. You must connect your printer to your router or computer with a network (i.e. Ethernet) cable.

The computer should be able to automatically get your printer's IP address. If the computer cannot get your printer's IP address, you must make changes to your network settings.

When your computer and printer are connected, you can open an Internet browser on the computer, and key the IP address into the address bar of the browser. The browser console appears in the Internet browser.

3.2.2 Connecting to a wireless network

Connect your printer to a Wi-Fi network so that you can get access to the browser console and start prints via an Internet browser.

To connect to a wireless network:

Step 1 Make sure the Wi-Fi dongles is connected to a USB port on the back of your printer.

Step 2 Press the **System** button on the **Home** screen, select **Network**.

Step 3 Press **Choose Network** to see a list of available wireless networks.

More info: You can swipe up and down to see the complete list if there are too many to show on one screen.

More info: The Wi-Fi icon shows the strength of the Wi-Fi signal; There is a lock icon adjacent to password-protected networks.

Step 4 Select the network that you want to use and key in the password if your wireless network is password-protected.

Result of this task: When you are connected to a network. The list shows you are **Connected** to a specific Wi-Fi network and your printer's IP address is visible on the Wi-Fi page.

You can now open an internet browser, key in your printer's IP address into the address bar, and operate the printer from your computer.

3.2.3 Configuring a static IP address

Most network connections use a dynamic IP address and DNS servers. If your network security system requires that you set a Static IP address or DNS server, you must go to the Network Settings. Please "Network Settings" on page 28 for more information.

3.3 Adding resin to the vat

To add resin to the vat:

Step 1 Remove the vat from printer.

Step 2 Select a specific resin for the application.

Step 3 Shake the bottle for approximately two minutes to thoroughly mix the resin.

Step 4 Open the bottle.

Step 5 Pour the resin in the vat, starting at one side and moving to the other so that the resin is evenly distributed across the bottom of the vat.

More info: There are level indicators on the vat to show the volume of resin, i.e. 100 ml and 150 ml.

Step 6 Close the bottle immediately and put it in a safe place for storage.

3.4 Attaching the vat

You must remove your vat whenever you need to change resins or clean the vat.

To put the vat in place on the printer:

Step 1 If the vat lock frame is down, press the two tabs to release it and lift it. A magnet holds the vat frame in the raised position.

Step 2 Put the vat on the print screen and make sure the feet on the bottom of the vat sit in the holes around the print screen.

Step 3 Lower the vat lock frame over the vat and push it down until the tabs click and lock it into place.

Result of this task: The vat is now in place on the printer.

3.5 Attaching the build platform

The build platform is attached to the printer during shipping but you must remove the build platform whenever you remove the vat or complete a print.

To put the build platform back in place on the printer:

Step 1 Turn the knob on the build platform counterclockwise so that there is more space between the knob and the build platform.

Step 2 Slide the build platform into the gap on the guideway arm. Make sure it is pushed back and doesn't twist.

Step 3 Turn the knob clockwise to securely attach the build platform to the guideway arm.

Result of this task: Your printer is ready for use when the build platform is in place and securely attached to the guideway arm.

Printing

4.1 Starting the print process

4.1.1 Printing via a USB device

Note: Your SOL 3D printer must be connected to the Internet to start the print process.

This section shows how to start the print process via a USB device. To print over a network connection, see "Printing via the browser console" on page 20.

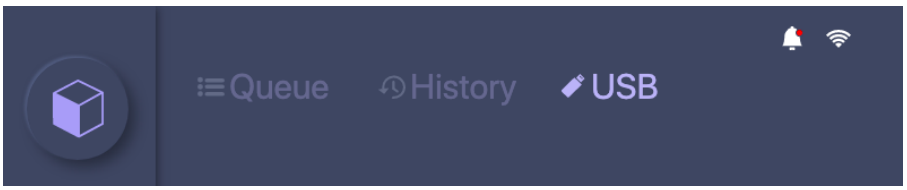
Note: You must first make sure that you have a print file on a USB device.

Step 1 Make sure the vat and build platform are in place on the printer and that the vat has enough resin.

Step 2 Connect the flash drive to the USB port on the back of the printer.

Step 3 Press **Print** on the **Home** screen.

Step 4 Select the **USB** tab to view the files on the USB device.



More info: You can swipe up and down to view a long list of files.

Step 5 Select the IBF file that you want to print.

Step 6 Press **Add to Queue** to add the selected file to the print queue.

Step 7 Select the **Queue** tab and make sure that the file you want to print is at the top of the list.

Step 8 Review and confirm your print details (i.e. the file name, the resin profile, the volume of resin, and the number of layers).

Step 9 Press **Print** to start the print process. The build platform moves down and toward the vat and the print process begins.

More info: You can remove the USB device when the build platform moves down and the print process starts.

4.1.2 Printing via the browser console

If you have connected your printer to a local network, you can add, edit, and view a print job in an Internet browser on a computer or mobile device on the same network.

For more information about how to set up your printer so that you can access the browser console, please refer to the appropriate section:

- "Connecting to a wired network" on page 14
- "Connecting to a wireless network" on page 15

To set up a print job via the browser console:

Step 1 Open an Internet browser on a computer that is connected to the same network as your printer.

Step 2 Key the printer IP address into the address bar.

Step outcome: The browser shows the browser console for your printer.

Step 3 Select the **Print** tab at the top of the screen.

Step 4 Add the print file to the **Queue**. You can add a print file from your computer, the printer **History**, or from a **USB** device attached to the printer.

More info: All print files are either IBF or SBF format.

If you are loading a print file from your computer,

Step 5 Select the **+** button to add prints to the printer.

Step 6 Browse the selected directory for your print file and click **Open**.

Step 7 make sure the file you want to print is at the top of the list on the **Queue** tab and click **Ready**.

Step outcome: A window appears showing you the estimated print time and asking you to check the material in the vat. You also have the option to **Cancel** the print.

Step 8 Go to the printer and press the **Print** button.

Result of this task: The print process begins.

Caution	**It is your responsibility to make sure that there are no objects already attached to the build platform when you start the print process. This is a risk that is related to starting print jobs remotely. Ackuretta is not responsible for any damage caused by objects on the build platform.**

4.2 The print process

- You can pause or stop the print process at any time via the printer console or the browser console.
- The printer automatically shows the **Printing Process** screen when you start a print job. You can always see print information, such as the duration and time remaining, and activate specific print options.
- You can open the **Printing Process** screen any time by going to **Print > Printing Process**.
- The **Cancel** button is available when you start a print job and the printer is moving into position. You can only cancel the print job before any resin is cured. This option is made available for if you forget to attach the build platform or make a mistake with your printing setup.
- When the print process starts and the first layer of resin is cured, the **Cancel** button changes to show a **Pause** button. You can press **Pause** to temporarily stop the printer so that you can add more resin or see if the print has failed. When you press **Pause**, the printer cures the current layer before making any other options available.
- When the printer is paused, two new options become available:
- **Resume** - If the print is paused, press the **Resume** button to continue printing.
- **Stop** - Press the **Stop** button to end the print process so you can clean the build platform and start printing a new print. You cannot undo this action.
- When you stop the print process, the printer finishes printing the current layer before showing the **Home** screen again. The build platform then moves to the top of the Z-axis tower.

Configuring your printer

The Settings screen shows system-wide settings and information. All the same functionality exists in the browser console.
To get access to the **Printer Settings** screen, go to *Settings* > *Printer*.

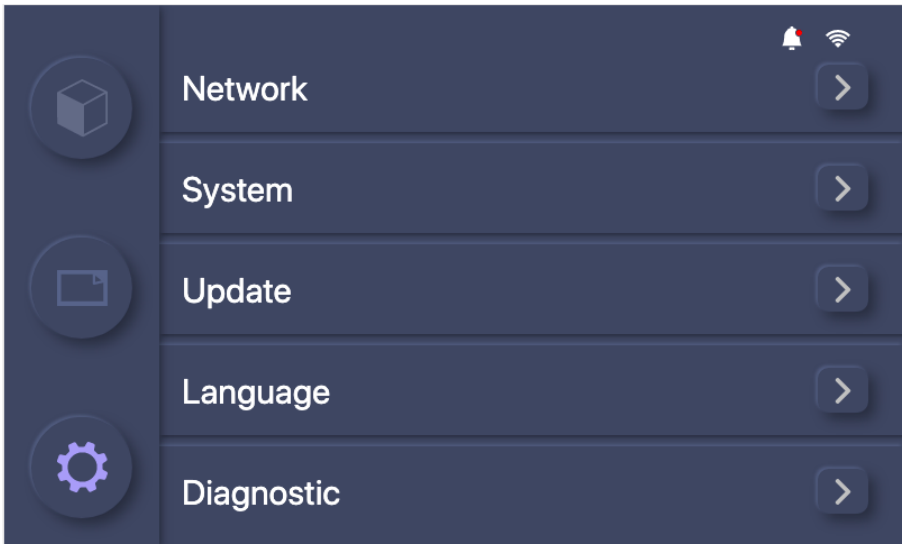


Table 1: Printer Settings

Setting	Description
Firmware version	The currently installed version of the printer firmware.

Table 1: Printer Settings

Setting	Description
Machine ID	The unique ID for this printer. This is not the same as the serial number, which is on a label affixed to the back side of the printer.
Storage Used	Your printer has 16 GB of on-board storage. About 2 GB of this storage is dedicated to the firmware. Tip: If your storage is nearly full, you can delete files via the **Print** screen. Go to **Print > Printers**, select the files you want to delete, and press **Delete**.

5.1 Updating Settings

You can check the version of the printer firmware and update your firmware via the **Update Settings** screen.

Go to **Settings > Update**.

The **Update Settings** screen shows the current version of the printer firmware and gives you the option to update the firmware and material settings.

Table 2: Update Settings

Setting	Description
Firmware Version	The printer firmware version that is currently installed.
Update Firmware From USB Device	Load a version of printer firmware via a USB device.
Update Firmware Online	Look online and automatically download the latest version of the printer firmware if a newer version is available.

5.2 System Settings

The **Settings** screen gives you access to system-wide settings and information. All the same functionality exists in the printer console.

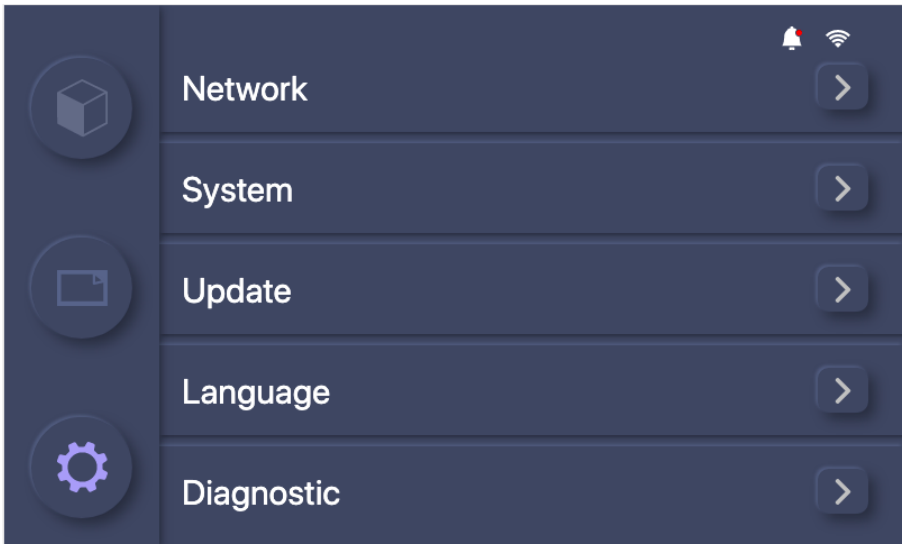


Table 3: System Settings

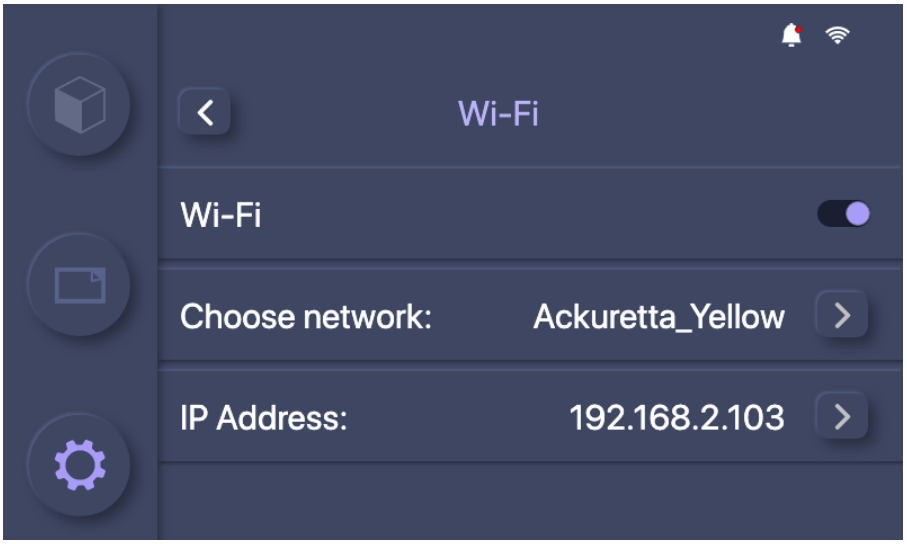
Settings	Description
Network	Connect to either a wired or wireless network. For instructions on how to set up a network connection, see “Connecting to a network” on page 34.
System	View system information, change your printer’s name, and choose whether to share diagnostic information with Ackuretta.

Table 3: System Settings

Settings	Description
Update	Configure your printer system settings or update your printer firmware and material settings. For more information, see “Configuring your printer” on page 31.
Language	Choose you preferred language.
Diagnostics	Use the Diagnostics functions to determine the source of any printer issue. You must contact your support agent for more information about printer diagnostics.

5.2.1 Network Settings

Connect to either a wired or wireless network. For instructions on how to set up a network connection, see “Connecting to a Network” on page 14.



The following options are available for both wired and wireless networks. You must select either Wi-Fi or Ethernet before you can configure these network settings.

Table 4: Network Settings

Setting	Description
Find IP automatically toggle	Turn this on to automatically assign an IP address to your printer. Otherwise, the other settings are made available and you must at least set an IP address for your printer.
IP Address	Set a unique string of characters that identifies your printer to communicate over the network.

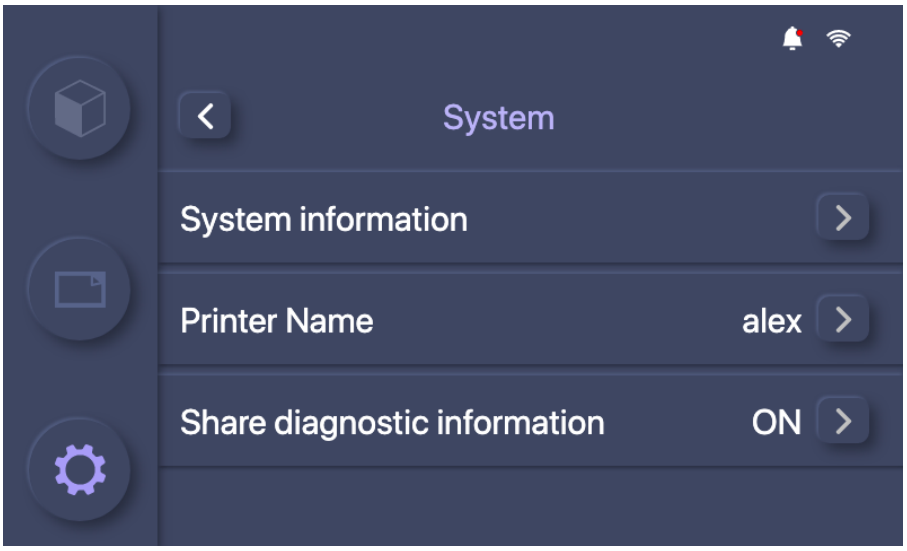
Table 4: Network Settings

Setting	Description
Subnet Mask	Set a subnet mask on the printer so that you can separate the IP address into the network and host addresses.
Default Gateway	Set a default gateway to set a path for your printer to access a specific network segment.
Find DNS server automatically	Turn this on to allow the printer to be discovered on a network. Otherwise, you can set the subsequent DNS server settings.
Primary DNS Server	Set the first point of contact for printer if you need to control it over a wide area network (WAN)
Secondary DNS server	Set the second point of contact for printer if you need to control it over a wide area network (WAN)

5.2.2 System Settings & Information

The **System** screen gives you access to system information, and allows you to set a name for your printer and control whether you share diagnostic information with Ackuretta.

To get access to the **System** screen, go to *Settings* > *System*.



5.2.2.1 System Information

Press the **System Information** button to view the following details about your printer.:

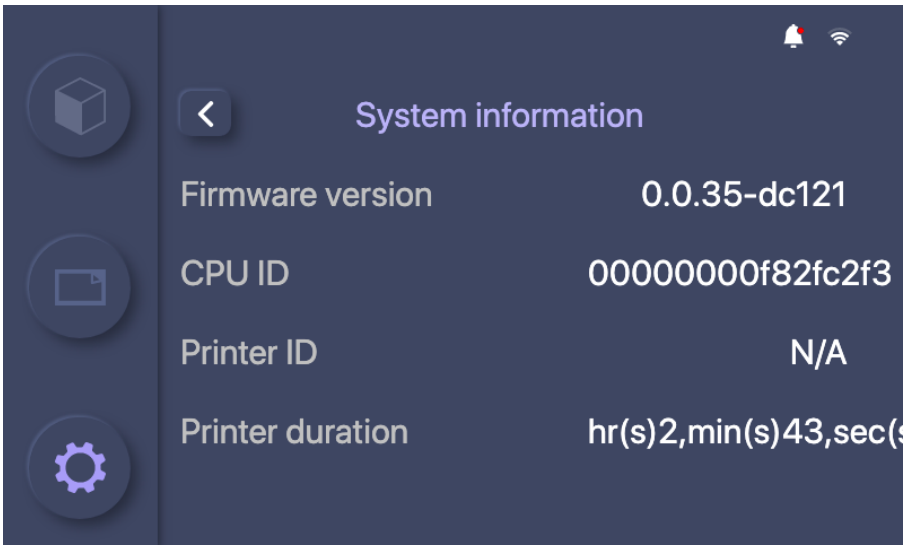


Table 5: System Information

Firmware Version	The currently installed version of the printer firmware.
CPU ID	
Printer ID	The unique ID for this printer. This is not the same as the serial number, which is on a label affixed to the back side of the printer.
Print duration	The total time of all print jobs.

5.2.2.2 Printer Name

Select Printer Name to give your printer any name for your own reference.

5.2.2.3 Share Diagnostics

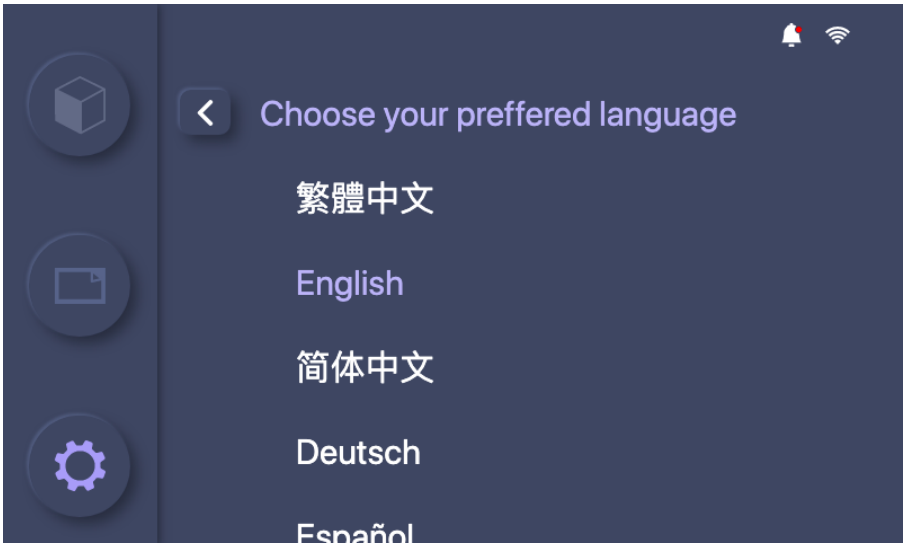
You have the option to share diagnostic information with Ackuretta. If you consent to sharing this technical data, we may use it to make further developments and improvements. Please note that if you submit a request for support, you must provide the log file available via *Settings* > *Diagnostics* > *Logs*.

5.2.3 Update

You can check the version of the printer firmware and update your firmware via the **Update Settings** screen. Please refer to "Updating Printer Firmware" on page 44 for more information.

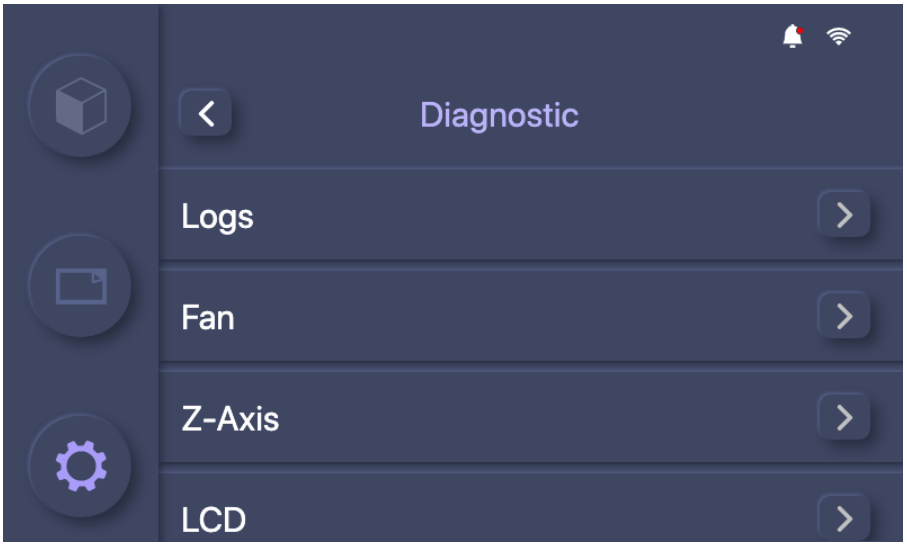
5.2.4 Language

Set the preferred language for the user interface on your printer.



5.2.5 Diagnostics

The diagnostic tools are designed to help you resolve common printer issues. You can get access to these tools via *Settings* > *System* > *Diagnostics*.

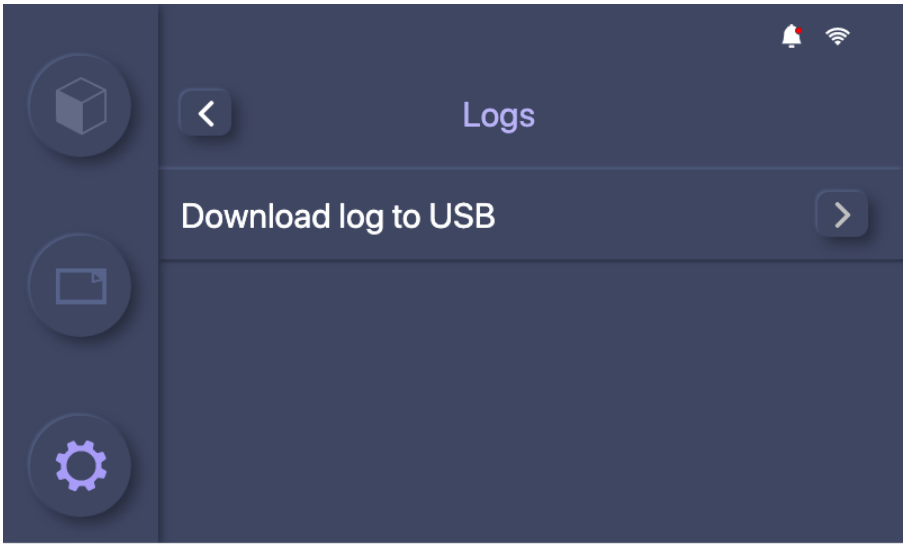


5.2.5.1 Logs

The log file contains a list of all the printer processes but these process can be defined as with User, System, or Print processes.

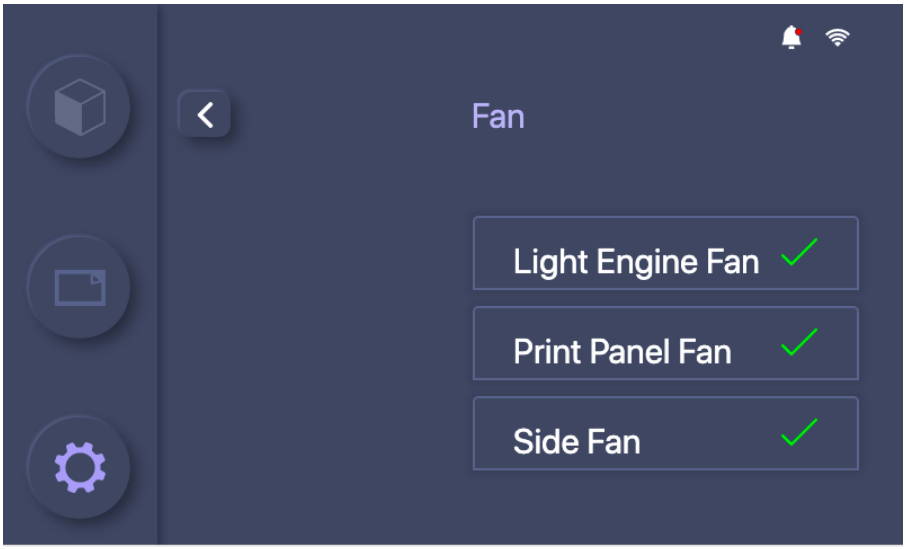
You must submit this file whenever you submit a request for support.

To download the log file from your printer, go to *Settings* > *System* > *Log*, and press the ? button. You must have a USB device connected if you access this screen via the printer.



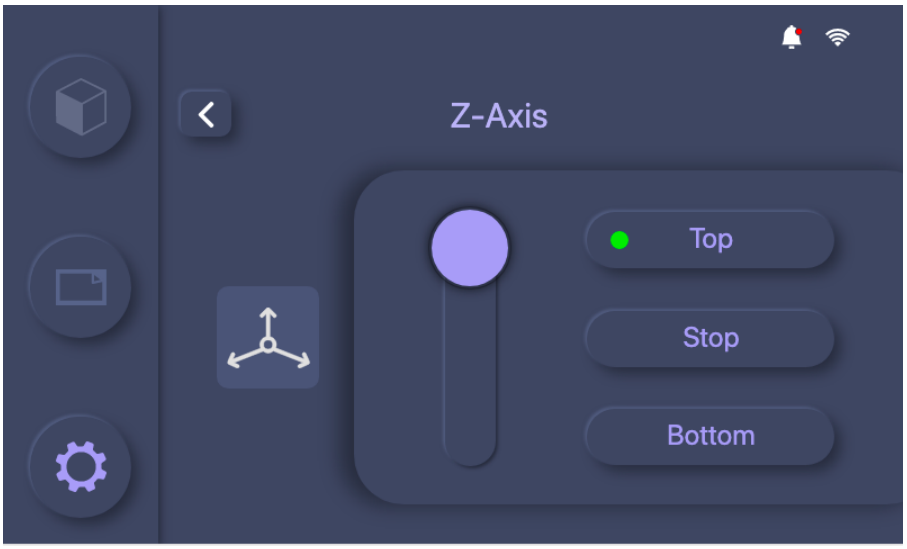
5.2.5.2 Fan

The Fans screen shows whether the three cooling fans in your printer operate as expected.



5.2.5.3 Z-Axis

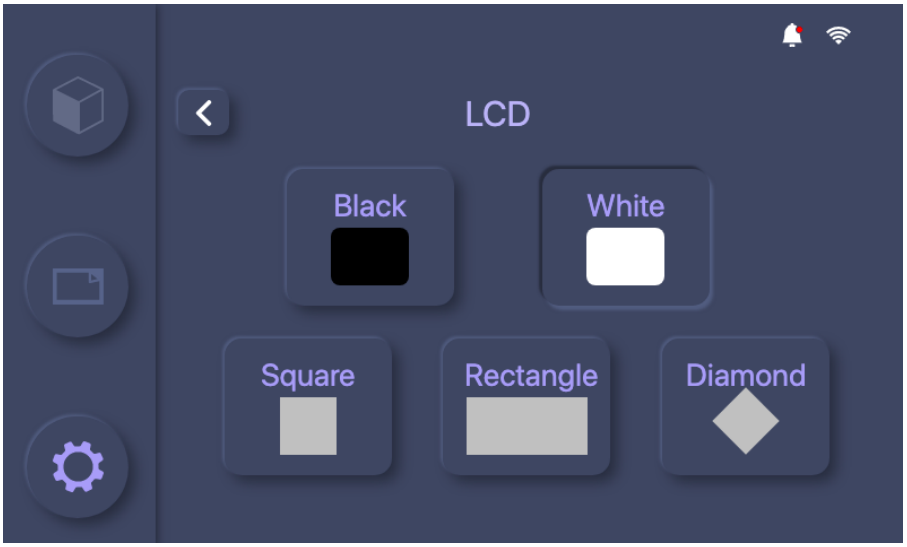
The Z-Axis screen contains buttons and a slider that allow you to control the vertical motion of the build platform/guideway arm.



5.2.5.4 LCD

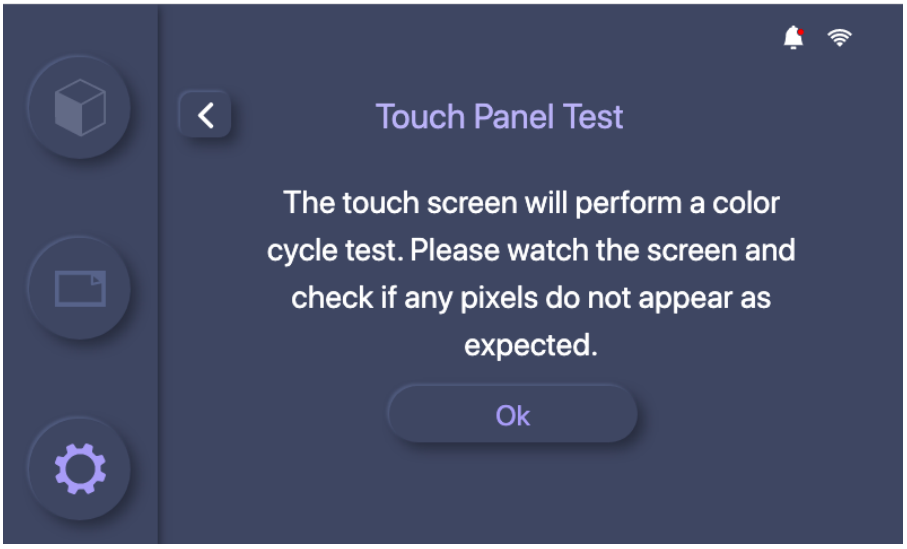
Caution **Ultraviolet light is dangerous if used without taking the proper precautions. You must avoid exposure to direct or reflected ultraviolet rays, since they cause painful eye irritation and reddening of the skin. In order to safely diagnose issues with the print screen, you must wear personal protection equipment—UV-filter safety glasses or an ultraviolet-blocking face shield to protect eyes and exposed skin.Under no circumstances should you look directly at the print screen when it is illuminated and you are unprotected. Always keep the hood closed during the print process.**

You can set it to show different patterns or either illuminate or darken the complete screen to determine whether the LCD panel in your printer is operating as expected.



5.2.5.5 Touch Panel

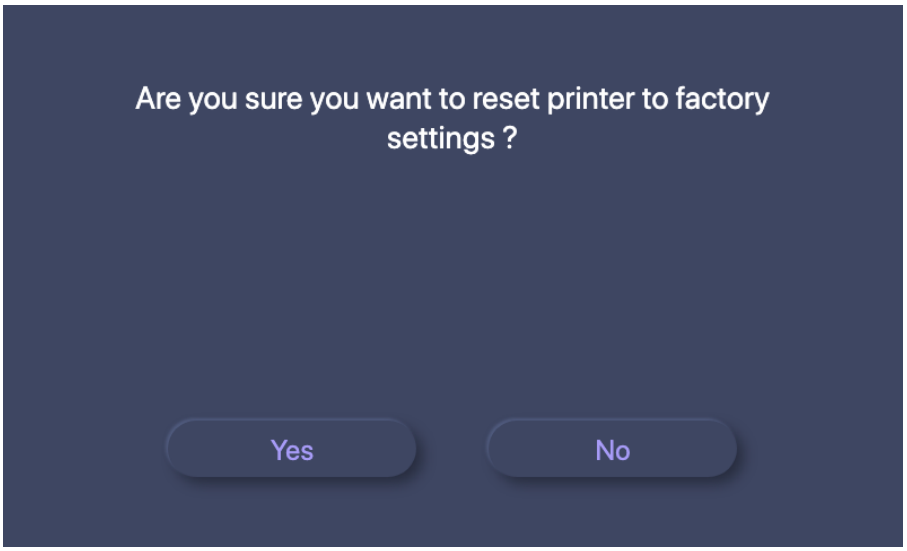
Select from the options available on this screen to determine whether the touchscreen is operating as expected. The touch-screen test will cycle through a series of colors each time you press the button.



5.2.5.6 Reset

Note: This process will delete any custom settings you have applied to your printer.

Reset the printer to the factory settings that are configured for the current version of the firmware.



5.2.5.7 Advanced

The advanced settings are password-protected and provided only for further diagnostics by an Ackuretta-approved technician.

Maintaining your printer

6.1 Using the Clean Vat function

When a print fails, you can use the Clean Vat function to remove pieces of print that did not securely attach to the build platform during the print process.

The Clean Vat function cures a layer of resin at the bottom of the vat. You can then easily remove the cured layer and dispose of it with any other debris.

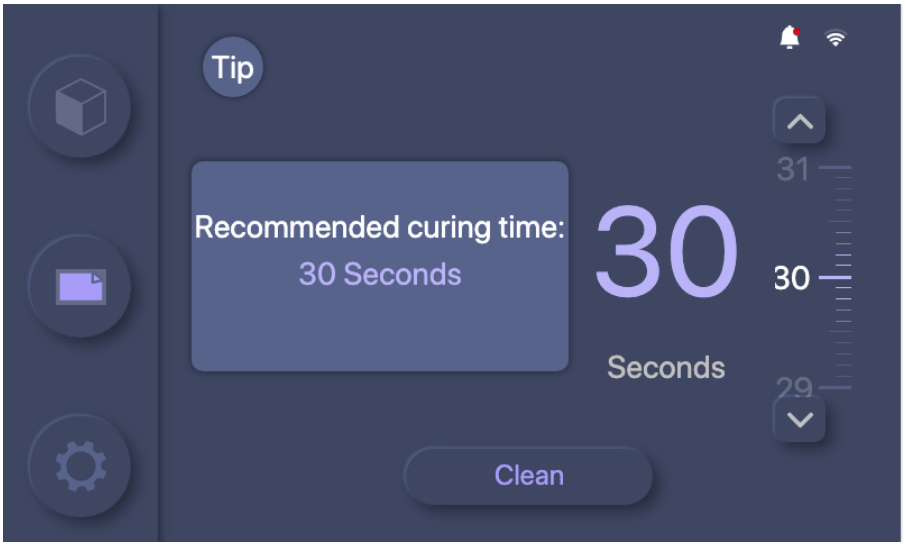
You will need the following items:

- Some stiff paper or cards;
- A bin and clear plastic bag; and
- Personal protective equipment (PPE), i.e. chemical resistant gloves.

Note: We strongly recommend that you wear a respirator if you are working with 3D printing materials for extended periods of time.

To use the Clean Vat function:

Step 1 Press the **Clean** button on the **Home** screen.



Step 2 Click and drag the spinner to set a value for the length of curing time for the Clean Vat function. You can also use the up and down arrow buttons to set the time value in seconds.

- We strongly recommend setting a time that is three times more than the normal curing time of the resin.

Step 3 Press the **Clean** button. The printer cures a layer of resin at the bottom of the vat.

Step outcome: The printer shows "Clean Finished" when the process is complete.

Step 4 Remove the vat from your printer and put it flat on the table so that it is easier to work with.

Step 5 Push the resin away from one side of the vat so that a corner of the vat film is visible.

Caution	**Never use any sharp or metallic tools to touch any part of the vat.**

Step 6 Use a piece of paper or card to lift a corner of the cured layer and peel the layer off the vat film.

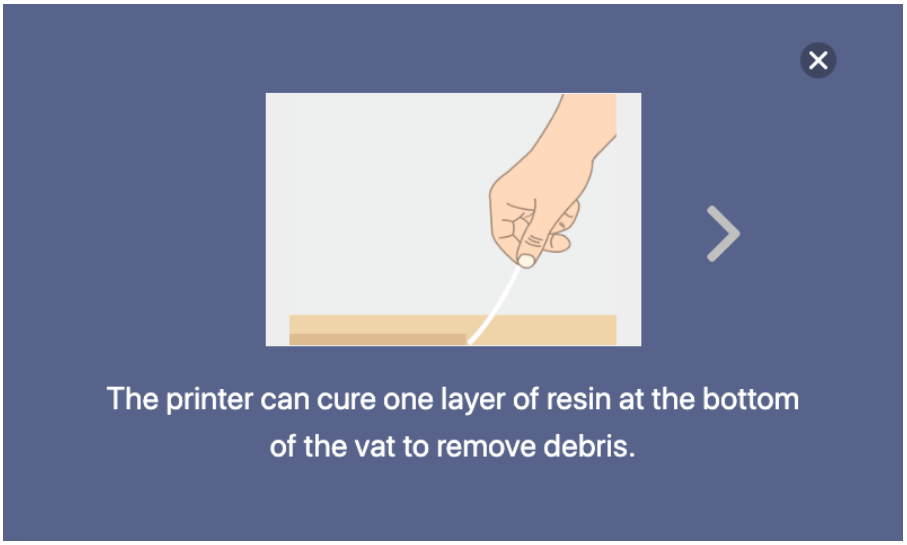
- If the paper is saturated with resin, dispose of it and get another piece so that the process is easier and there is less chance of making a mess.

Step 7 Remove the layer of cured resin and allow any excess resin to drip off the cured layer.

Step 8 Put the cured layer in the bin.

Result of this task: You can now clean the vat or put the vat back in place and start the print process again.

More info: You can always press the **Tip** button in the top-left corner to get directions while using the printer



6.2 Cleaning the vat

If you want to change resins or check the vat film for damage, it is best to completely clean the vat.

Tip: We strongly recommend keeping a different vat for each type of resin that you use instead of cleaning the vat every time you want to change resins. Make sure to store all vats with resin in a dry, dark location.

Cleaning the vat takes approximately 15 minutes.

You will need:

- A clean, dry, opaque bottle;
- A funnel;
- A mesh filter (optional);
- Cleaning alcohol (70% or higher ethanol or 90% or higher isopropyl alcohol;
- Some stiff paper or cards;
- A silicon or rubber spatula (optional);
- Tissues;
- A bin and clear plastic bag;
- Air compressor or blower (optional); and
- Personal protective equipment (PPE), i.e. chemical resistant gloves.

Note: We strongly recommend that you wear a respirator if you are working with 3D printing materials for an extended period of time.

To clean the vat:

Step 1	Prepare a bin and clear plastic bag to collect the waste.
Step 2	Put the funnel and mesh filter in place on the bottle.
Step 3	Remove the vat from your printer.

Caution	**You must always remove the build platform before removing the vat from the printer.**

Step 4 Pour the resin into the bottle using one of the grooves in a corner.

- You can use a rubber spatula to push the resin down to preserve more resin. Never use metal tools on the vat film.

Step 5 Put the vat down on the table.

Step 6 Spray cleaning alcohol into the vat.

Step 7 Use a card to mix the alcohol and remaining resin with the spatula.

Caution	**Never use any sharp or metallic tools to touch any part of the vat.**

Step 8 Use tissues to absorb the resin.

Step 9 Dispose of the alcohol and resin mixture.

- Some resin gets trapped between the vat frame and vat film. You must remove this resin.

Step 10 Use the card or spatula to gently push the vat film down so there is a small gap between the vat frame and the vat film.

Step 11 Spray alcohol into the gap between the vat frame and vat film.

Step 12 Use the card or spatula to push a tissue into the gap to absorb the alcohol and resin mixture.

- Repeat this process until there is no resin between the vat frame and vat film.

Step 13 Spray more cleaning alcohol into the center of the vat.

Step 14 Use tissues and compressed air to dry the remaining alcohol.

6.3 Updating Printer Firmware

To update the printer firmware to the most recent version:

Step 1 Go to the Settings page and press the **Update** button.

Step outcome: Your printer asks you to confirm that you want to update the firmware.

Step 2 Press the **Yes** button to open the **Update** screen.

Step 3 Press the **Update firmware online** button.

More info: You can only update the system software.

Step 4 The system checks for the update file online. If it finds a more recent version of the firmware, it shows the confirmation screen and asks you whether you want to update the firmware.

Step 5 Press the **Update** button to complete the update process or press **Cancel**.

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