Version 2.0, November 2022

Desktop Health™

Einstein™

Operations and Maintenance Guide

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Identification

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Einstein Operations and Maintenance Guide: EIN-UG-00022-Rev02-EN, November 2022

About This Document

Note: This guide is for **version 2.2** of the Einstein Control Software.

This guide:

- Describes the working principle, operation, and maintenance of the printer, and
- Provides important information on safe and efficient handling of the printer.

Note: The operation of the Envision One RP Software is described in the Envision One RP Software Manual.

This document is an important part of the system and includes important notes, tolerances for calibration tasks if applicable. Follow it closely when starting up the printer and during its operation.

All directions and locations in this instruction manual are explained from the working position of the operator.

History of Changes

Date	Changes	Version
Mar-2022	Document creation	1.0
Mar-2022	• Added section Legal Notice • Updated section Mechanical Data • Updated footer	1.1
Mar-2022	• Updated section Adjust Parallelism	1.2
Aug-2022	• Added section Set Ad Hoc • Updated section Request Support	1.3
Sep-2022	• Update section Mechanical Data • Updated section Install Build Platform • Updated section Mask Generation • Updated section Adjust Parallelism	1.4
Nov-2022	• Updated section Unbox Printer • Added section Unbox External Hardware • Added section Unbox Accessories • Updated section Job Settings	2.0

Technical Data

Mechanical Data

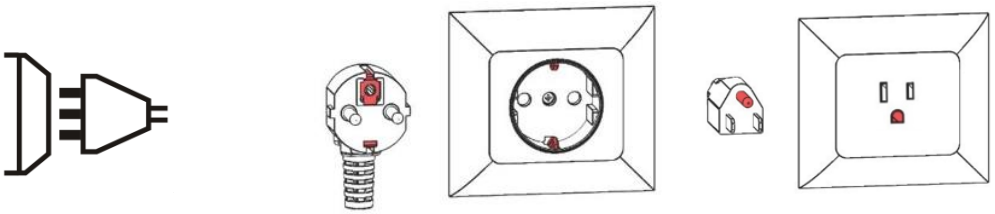
	Einstein
Footprint	40.64 x 40.64 x 69.85 cm (16" x 16" 27.5")
Weight	36.3 kg (80 lbs.)
Build Envelope	190 x 106.875 x 101 mm (7.48" x 4.21" x 4")
Projector Resolution	1920 px x 1080 px
XY Resolution	99 µm
Dynamic Z Resolution	25-150 µm
Warranty	1 year back to factory included

Electrical Requirements

Desktop Health recommends using an uninterrupted power supply to protect your printer. All electrical requirements must be met to ensure the most stable setup:

- Do not plug any additional equipment into the power circuit.
- The Einstein printer requires 100-240V, 50/60Hz, 1 ph, 5A max.
- The Einstein printer does not require a dedicated server. It can be connected wirelessly, hard-wired into the network, or directly connected to a computer.

⚠ WARNING	Risk of electric shock. Connect the printer to grounded outlet ground wire before using. Only use the grounding adapters of the plug & socket type targeted for the country of intended use of the printer.



Grounded plug | Type F grounded plug | Type B grounded plug

Figure 1: Grounded plugs

Network Requirements

- 139, 445 ports: Use to access the shared network folder (job, logs, update) on the printer. They are also used to upload jobs to the printer via network.
- 5900 port: Use a VNC server for printer remote control. See Connect to the Printer via VNC Clients.
- 2504 port: Use to connect between the Einstein Control Software and Envision One RP.
- 22 (ssh) and 443 (https): These are used for downloading the software update.

Intended Environmental Conditions

Storage Conditions for Materials

Store materials under the following conditions:

- At room temperature
- Dry
- In closed bottles
- Lightproof

If materials are filled in the material tray, always keep the printer's hood closed. If you don't need the material tray for an extended period, pack the material tray and store it under the same conditions as mentioned above.

Note: For specific storage conditions for materials, see the appropriate Material Best Practice Guide or Instruction of Use provided by manufacturer or distributor.

Printer Delivery

Unbox Printer

Your Einstein printer arrives in a box, with several of accessories boxes. The printer box and accessories boxes will be on top of a pallet. Use a dolly or pallet jack to take the printer to its working site.

- **Printer box:** Einstein, USB drive
- **External components box:** Starter kit, build platform, spare material tray.
- **Optional Boxes:** Parts curing apparatus, parts washing apparatus, if purchased.

The following tools are required to complete the unboxing process:

- A pair of box cutters/scissors
- Flathead screwdriver
- Dolly /Pallet-Jack
- One person to assist

Before opening the box, ensure there is no visible damage. If everything is in good condition:

1. Using the box cutters, carefully cut the box straps.
2. Remove the top of the box.
3. Remove any accessories boxes from the pallet, and place them on a flat sturdy work surface.
4. Remove the vinyl strap holding the printer in place.
5. With the help of a colleague, carefully lift the printer from the pallet, and place it on a sturdy flat surface capable of holding over 36.3 kg (80 lb).
6. Keep and store the printer box.

Unbox External Hardware

The External Hardware box contains:

- Material tray
- Build platform
- Starter kit

Unbox and set these aside for later installation.

Unbox Accessories

If any accessories, printing materials, or extra material trays were ordered, they will be sent separately.

Keep the curing apparatus box, the parts washer box, and the spare material tray box.

Starter Kit

The starter kit includes useful tools for operating and cleaning the printer and the built parts.

- Paint scraper
- Precision knife
- Putty knife
- Cone-shaped paint filters
- Rubber spatula
- Digital calipers
- Wi-Fi antenna
- Safety glasses

Cone-shaped paint filters

Used to strain material, the filters remove particles that are generally too small but may affect print quality. They are used while pouring material from the tray into the material storage containers for maintenance. Each filter is approved for one-time use only. Do not leave filters in the bottle of material for longer than five (5) minutes.

Rubber spatula

A rubber spatula is required to mix the material in the material tray before each print.

Paint scraper

Use the metal scraper to remove printed models from the build platform. Use the paint scraper for detaching larger printed models. You can also use the scraper to remove material residues from the build platform. See Detach Models from the Build Platform.

Putty knife

Use this tool to detach printed models, especially small and very delicate ones, from the build platform after print. See Detach Models from the Build Platform.

Safety glasses

These are required for light calibration and to assist with technical support cases.

Precision knife

Use a knife to cut supports off models, with caution. It is not recommended to pull supports off as this can leave indents in the supported surface.

Wi-Fi antenna

The Wi-Fi antenna plugs into the I/O panel on the back of the printer to allow for Wi-Fi connectivity.

Printer Components

Functional Description

During the build process, the model is built layer by layer. A mechanical system moves the build platform up so the cured material sticks to the build platform or to the previous layer.

Before starting the build process, calibrations must be performed at the factory.

The material is then directly poured into the material tray. Using Envision One RP® software or USB drive, transfer the print job to the printer and the build process begins.

When the build process finishes, remove the models from the build platform using a scraper treated according to the corresponding Material Best Practice guide.

Printer Construction

Front View

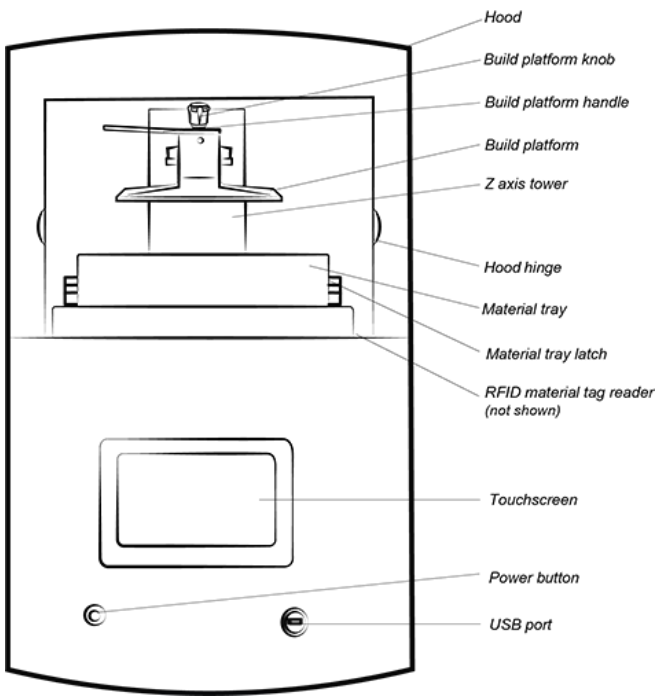


Figure 2: Front view of printer

Back View

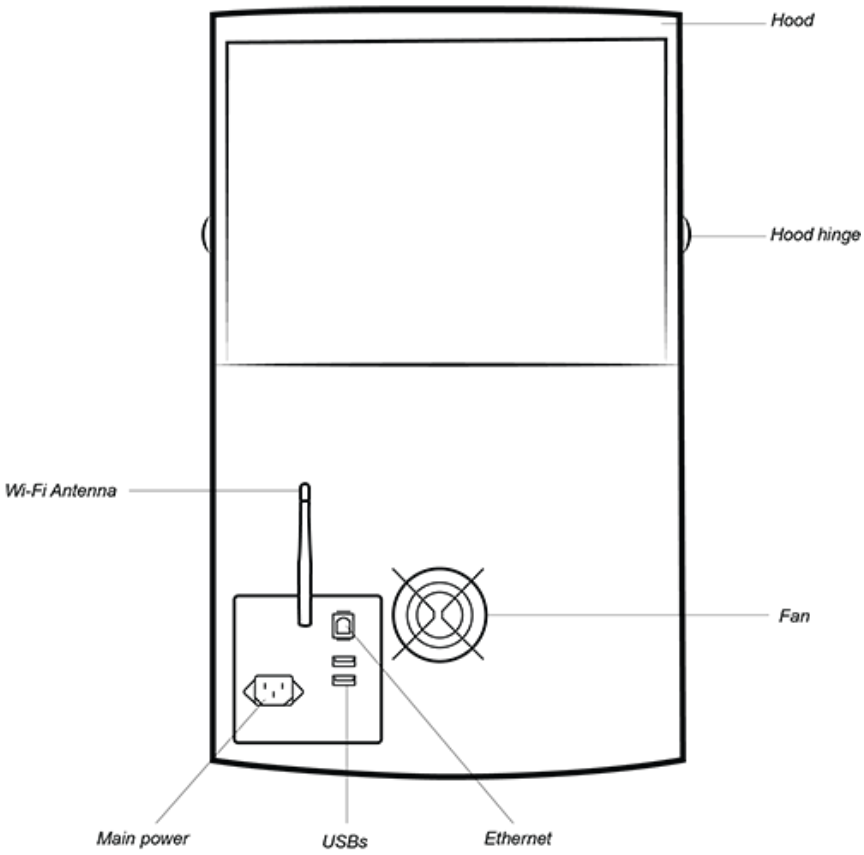


Figure 3: Back view of printer

Main Printer Components

Hood

The hood of the printer has no locking mechanism. Open or close the hood manually by rotating it on its hinges.

CAUTION	Risk of injury. The protection hood must always be closed, except when removing models from the printer. After the models are removed, close the hood on the printer.

When the hood is opened during the printing process, the job pauses.

RFID Tag Reader

NOTICE	Ensure you put the material tag into the reader as shown in this section. Failure to do so can result in damage to the RFID tag and reader.

The software utilizes the latest RFID technology (Radio Frequency Identification) which tracks the material level in the material bottle.

The tag reader prevents usage of a material that does not match the buildstyle or material tag.

Place the material tag (shipped with every material bottle) on the tag reader, where it is read and processed by the printer to ensure accuracy.

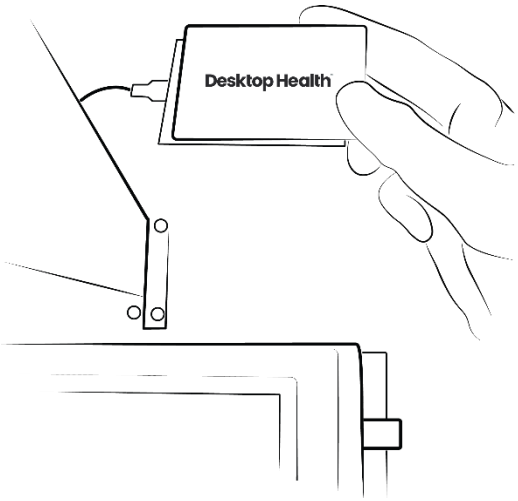


Figure 4: RFID Tag Reader

Build Platform

The build platform is an assembly comprised of:

- A large, flat platform
- A handle
- A connection cavity

Cured material adheres to the flat area of the build platform during the printing process. The build platform is nickel plated and is used for medical and technical applications.

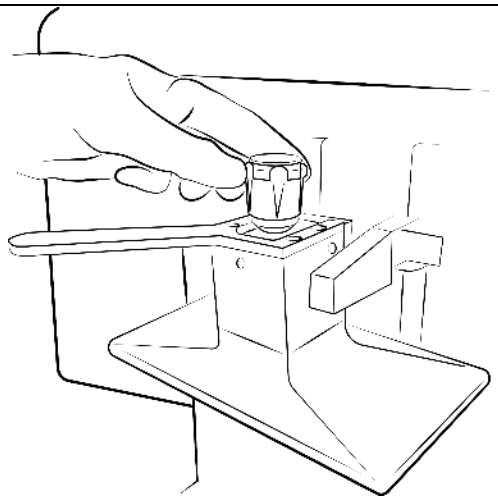


Figure 5: Build platform

Material Tray

Note: Use a different material tray for each kind of material to avoid contamination. If not possible, clean the material tray carefully and thoroughly.

The material tray consists of two plastic frames with a special membrane called *Pre-Stretched Assembly (PSA)* between them, which fits snuggly over a piece of glass when installed on the printer.

As the build platform moves up taking the exposed part away from the PSA, it pulls the membrane up and finally releasing it and allowing the parts to separate. The build platform then moves back down and the next image in the sequence is projected. The cycle repeats.

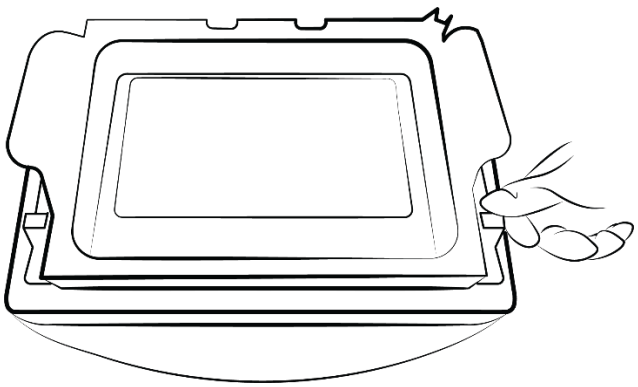


Figure 6: Material tray

Hall Sensors

Note: Information described in this section only applies to printers equipped with hall sensors.

Two sensors detect the presence of the build platform and the material tray on the printer: one for the build platform and one for the material tray.

The hall sensors detect when the build platform and material tray are not installed, prevent the job from starting and display an error message.

Z-axis

The build platform moves up and down along the Z-axis.

Hardware Setup

Connect Printer

Plug & Play

Connect the following as shown in the diagram below.

- The white antenna: Wi-Fi.
- The blue cable: CAT 6 Ethernet cable.
- Large black plug: Power

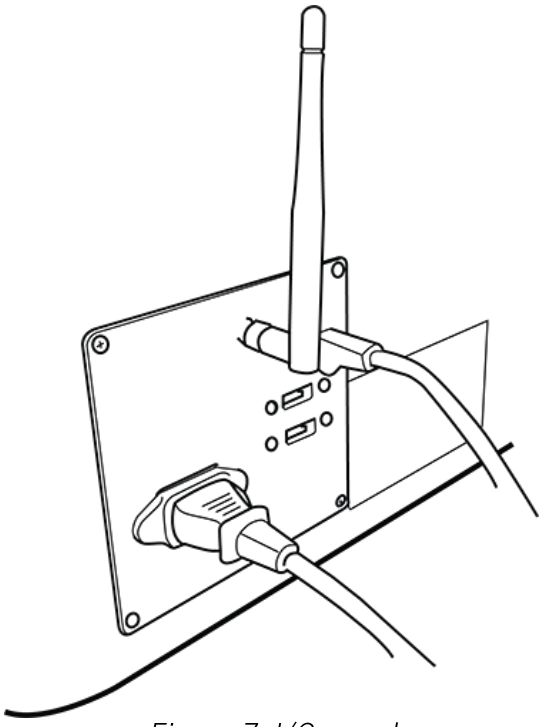


Figure 7: I/O panel

Note: There are two USB ports on the back of the printer. A USB drive with **printer compliance and safety** instructions is included in the original shipping box.
We recommend saving a backup copy of the data on your USB drive in a separate place, such as cloud-based storage, external hard drive, a backup computer.

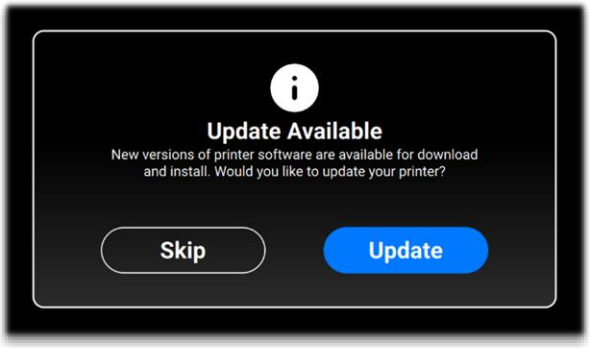
Turn Printer On

CAUTION	Risk of injury from crushing caused by moving printer parts. The printer may only be operated by instructed and specially trained personnel. The printer may only be operated if the protecting devices are working properly.

To turn the printer on, quickly press and release the power button.
→ The button illuminates and the screen switches on.
→ After a booting sequence, controller software is opened automatically.

NOTICE	Do not try to touch or open anything on the screen before the Controller Software has finished booting. This can cause damage to the files on the printer.

When an update is available for the printer, the following message appears:



- To update the printer, press **Update**.
- To discard the update message, press **Skip**.

Connect Parts Washing Apparatus

The PWA 2000 Parts Washing Apparatus is the recommended washing unit for the parts printed with the Einstein printer using non-medical materials. To set up the PWA 2000 Parts Washing Unit, see the Desktop Health Knowledge Base.

Connect Parts Curing Apparatus

The Otoflash is the recommended curing unit for the parts printed with the Einstein printer using medical printing materials. To set up the Otoflash parts curing unit, see the Desktop Health Knowledge Base.
The PCA 4000 Parts Curing Apparatus is the recommended curing unit for the parts printed with Einstein using non-medical printing materials. To set up PCA 4000, see the Desktop Health Knowledge Base.

Install Build Platform

To attach the build platform:

1. Open the printer's hood.
2. Turn the build platform knob on the top of the printer a couple time to loosen it.
3. Slide the build platform into the build platform housing at the top of the Z-axis tower.
4. Turn the build platform knob to tighten and secure the build platform in place.

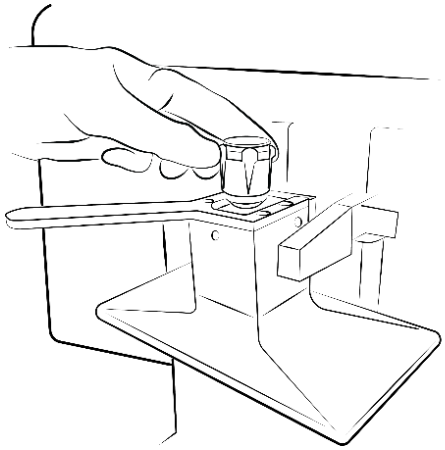


Figure 8: Build platform installation

Note: Make sure the magnet of the build platform is tightly coupled with the magnet on the printer.

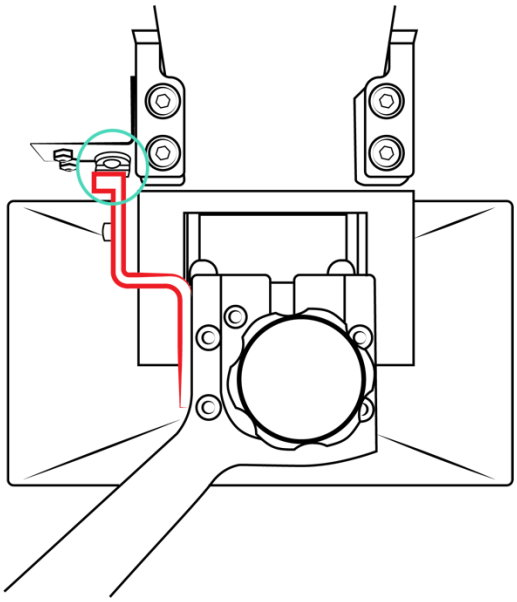


Figure 9: Build platform magnet and printer magnet

Note: Make sure the build platform is tightened securely before building. Failure to do so will make the build platform uneven and can cause build failures.

Install Material Tray

To install the material tray:

1. Push forward the red latches on the right and left of the build area.
2. Lower the material tray into the printer until it is fully seated.
3. Pull the red latches towards you to lock the material tray. It will click in place.

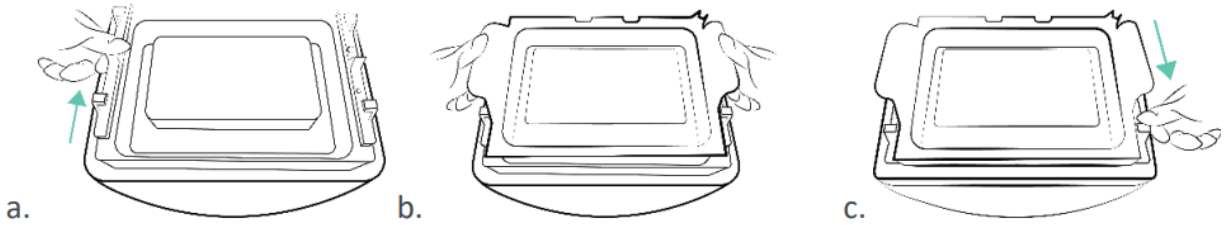


Figure 10. Material tray installation

NOTICE	Locking the red latches down is very important. If they are not locked properly, the material will splash inside the printer.

Add Material

Each type of material Desktop Health offers has a Material Best Practices Guide.

Be sure to properly prepare your specific material before each use. Always observe the relevant Material Safety Data Sheets supplied with the material bottle.

CAUTION	**Risk of injury.** Use the appropriate personal protective equipment.

NOTICE	Always remove the build platform before taking the material tray out of the printer. Failure to do so can result in material dripping down into the safety glass causing failed builds and ruined equipment.

NOTICE	Use a different material tray for each kind of material to avoid contamination. If not possible, clean the material tray carefully and thoroughly.

Note: Make sure the extraction is sufficient. Desktop Health recommends an air change of 25 m3/h per m3 effective surface of the laboratory as described in EN 13779.

Step-by-step

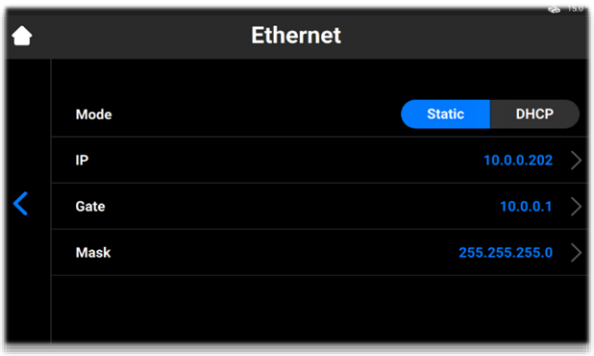
1. Open the printer's hood.

2. A material tag is attached to the material bottle. Remove the material tag and place the material tag on the material tag reader.
3. Shake the material bottle well. Open the material bottle and pour the material slowly into the material tray to the material fill line.
4. Mix the material thoroughly with the supplied spatula. Close the hood to protect the material from ambient light.

Set Ethernet

The Einstein printer is compatible with both ethernet and Wi-Fi connection types. To connect the printer to your network via an ethernet connection:

1. Plug the Ethernet cable into the network connector located on the back of the printer.
2. Connect the Ethernet cable to your network.
3. Go to **Settings** > **Network Settings** > **Ethernet**.



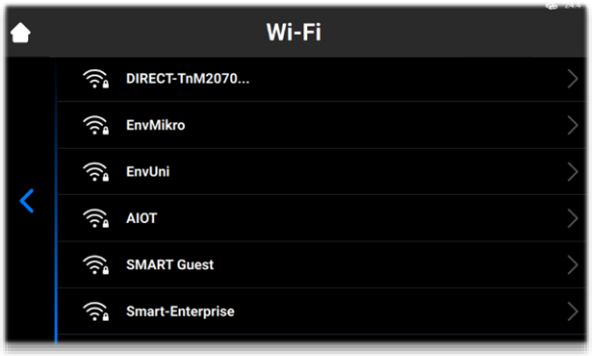
There are two connection types: static and dynamic.

- **Dynamic connection** or **DHCP**: Printer gets the dynamic IP address. All the fields are greyed out.
- **Static connection**: Fill all the fields manually using the settings for your network.

Set Wi-Fi

To set Wi-Fi on the printer:

1. Go to **Settings** > **Network Settings** > **Wi-Fi** from the main screen of Control Software.
2. Select the required **Wi-Fi** name on the list.



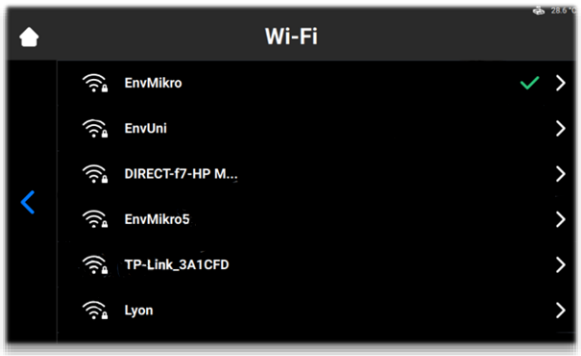
3. Press **Join**.
4. In the **Password** field, type a password for the selected Wi-Fi.

5. Press **OK**.

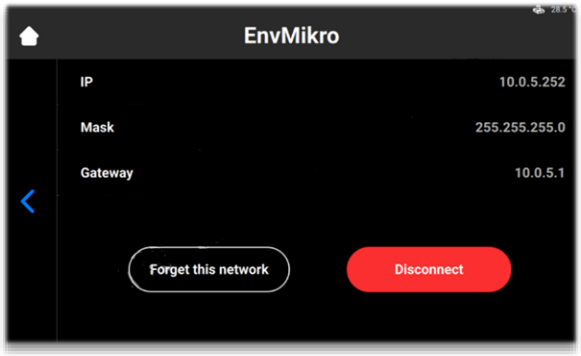
Connect to Another Wi-Fi Network

To join another Wi-Fi network:

1. Enter the **Wi-Fi** tab by pressing **Settings** > **Wi-Fi** on the touchscreen.
2. Select the network you want to disconnect from by pressing on it.



6. Press **Disconnect**.



3. Proceed with the steps outlined in the Setting Wi-Fi section.

Note: Press **Forget this network** to disable automatic connection to the current Wi-Fi network. It is possible to reconnect to this network again in the future. The system will ask for a password for protected Wi-Fi networks.

Set Ad Hoc

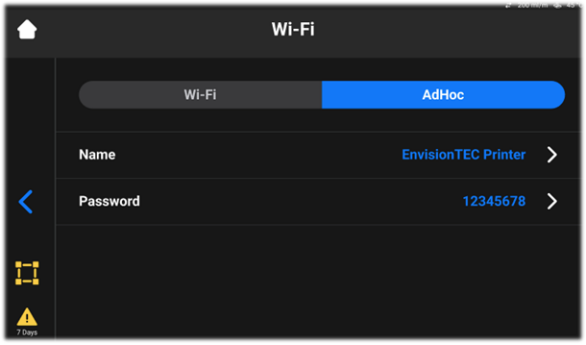
AdHoc is a type of on-demand device-to-device network. In ad hoc mode, you can set up a wireless connection directly to another computer or printer without having to connect to a Wi-Fi access point or router. It allows you to load the jobs to a printer that has no Internet connection.

Tune Up Ad Hoc

Note: Once Ad Hoc is chosen, Wi-Fi is disabled on the printer.

To set Ad Hoc on the printer:

1. Go to **Settings** > **Wi-Fi** > **AdHoc**.
   → The following screen appears.



2. To change the password for the AdHoc, press **Password**. The **Name** field, which is the printer's name, is set automatically.
   → The following screen appears.

Note: Your password must contain at least 8 up to 20 characters and must not contain spaces.

Connect to Ad Hoc

To connect to the Ad Hoc network:

1. Open the network settings on your computer or another device.
2. Find the hotspot name that matches the printer's name and select it.
3. Type the password from the **AdHoc** tab on the printer into the **Password** field.
4. Press **Save**.
   → The wireless connection to the printer is successfully established.

Connect to Printer via VNC Clients

VNC Clients allows the printer operator to view printer status from a computer, remotely control the printer within reason, and provide remote access to the printer during a Technical Support Case.

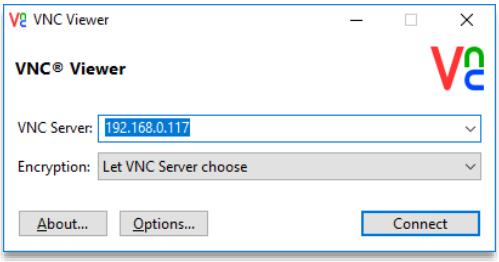
NOTICE	Improper use of the remote printer control over local network using VNC software may lead to damage. Use the remote printer control carefully. Do not use the remote printer control without an operator next to printer. The printer owner is responsible for any unsafe operation of the printer using the remote printer control.

Supported Clients for Windows

VNC Viewer

Step-by-step

1. Download the VNC Viewer and open it.
2. Type the IP address into the VNC Server box.

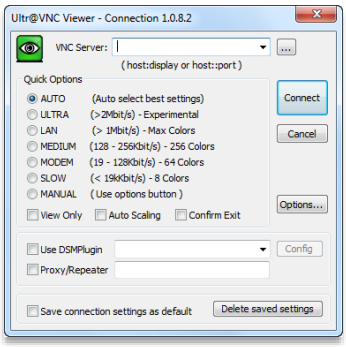


3. Press Connect.
   → The control screen appears.

UltraVNC Viewer

Step-by-step

1. Download UltraVNC Viewer and open the program.
2. Type the IP address into the VNC Server box.



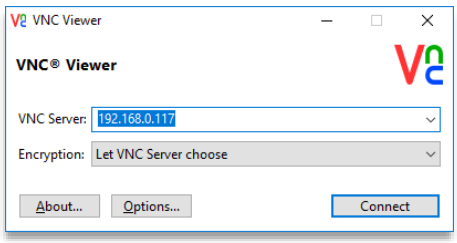
3. Press Connect.
   → The control screen appears.

Supported Clients for Linux

VNC-Viewer

Step-by-step

1. Download VNC Viewer and open the program.
2. Type the IP address into the VNC Server box.



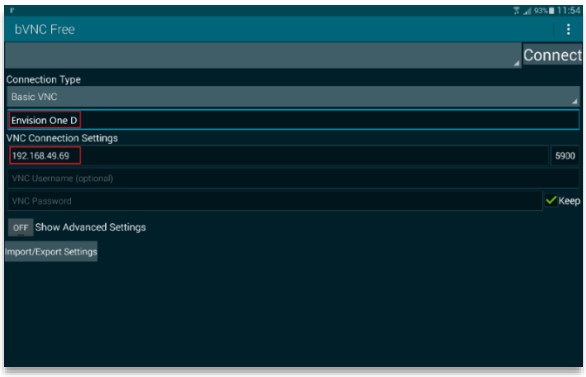
3. Press Connect.

Supported Clients for Android

bVNC Free

Step-by-step

1. Type the connection name and the IP address into the fields marked below.



2. Press **Connect**.
   → The control screen appears.
   → Proceed working on the printer.

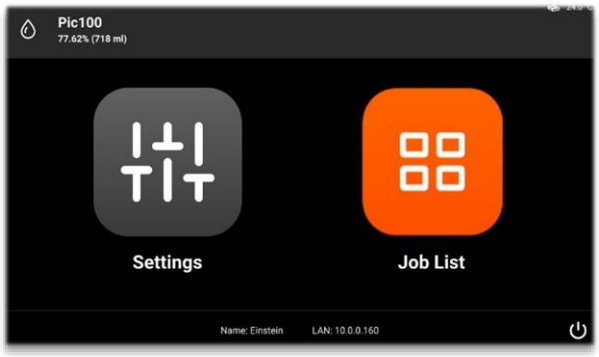
Supported Clients for iOS

VNC Viewer

Type the IP address and the connection name into the **Address** and **Name** boxes.
→ The control screen appears.
→ Proceed working on the printer.

Software Presentation

Einstein Control Software



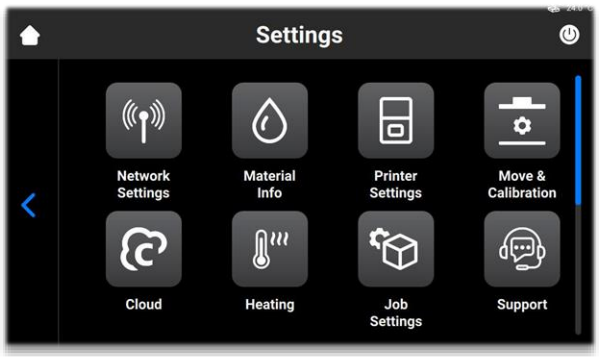
In the Control Software, there are two main menus:

- Settings menu
- Job List menu

Settings Menu

The Settings menu:

- Allows you to change settings of the printer build parameter or the printer itself.
- Gives further information about the printer or the LAN connection.
- Allows you to switch the printer off electronically.



To exit the Settings menu, press the < icon on the left of the screen.
To enter the main screen, press the Home icon in top-left corner of the screen.

Network Settings

Wi-Fi

The Wi-Fi tab allows you to set the Wi-Fi connection on the printer.
Go to Settings > Network Settings > Wi-Fi.

See Set Wi-Fi.

Ethernet

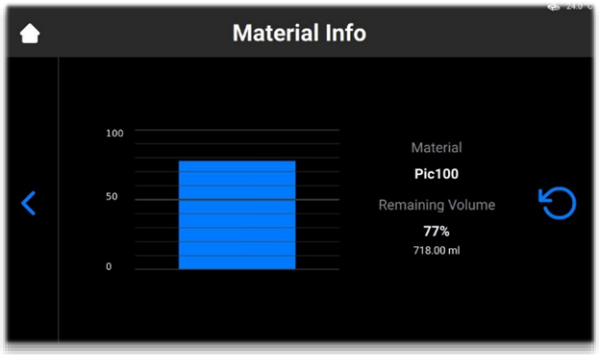
This tab allows you to set the network on the printer.
Go to **Settings** >**Network Settings** > **Ethernet** to open the tab.
See Set Ethernet.

Material Info

The **Material Info** tab provides information about:

- Type of material used on the printer.
- Amount of the material left on the material tag.

Go to **Settings** > **Information** > **Material Info** to open the tab.



Press the **Refresh** button to update the data from the RFID tag reader.
To change the material tag, proceed as follows:

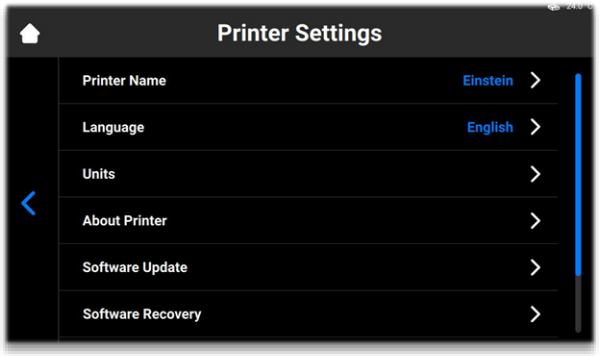
1. Remove the material tag from the tag reader.
2. Put the new material tag on the tag reader.
3. Press the **Refresh** button.
   → The material information will be updated based on your new material tag.

Printer Settings

The **Printer Settings** tab:

- Provides information about the printer.
- Allows you to change the printer's name, select units of measurement, and update the software.

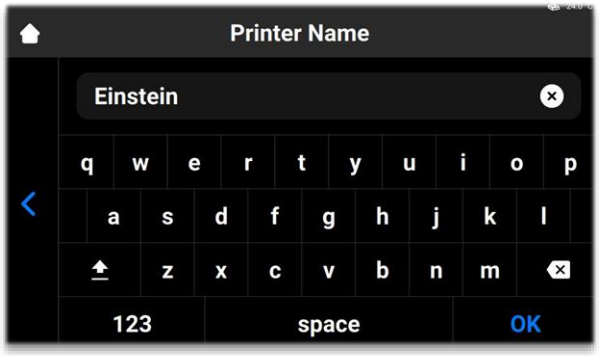
Go to **Settings** > **Printer Settings** to open the tab.



Printer Name

This option allows you to change the name of a printer.

1. Go to Settings > Printer Settings > Printer Name.



2. Type the name of the printer into the corresponding field using the keyboard on the screen.

> **Note:** Printer name may contain:
> • letters from a to z
> • digits from 0 to 9
> • a hyphen (-)
> It may not:
> • include spaces
> • include special characters
> • begin with a number or a hyphen

3. Press OK.
   → The printer's name is changed.

Units

The Units tab allows you to select the units of measurement for the motion parameters.

1. Go to Settings > Printer Settings > Units.

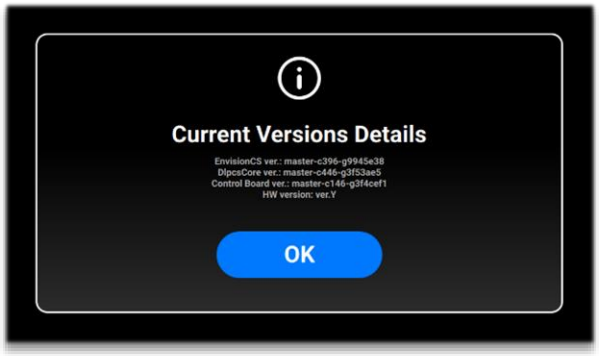
1. Press **Distance**.
2. Select **Inches** or **Millimeters** by pressing the corresponding field.
3. Press **Temperature**.
4. Select **Fahrenheit** or **Celsius** by pressing the corresponding field.
   → The units of measurement are changed.

About Printer

The **About Printer** tab provides information about the printer.
Go to **Settings** > **Printer Settings** > **About Printer** to open the tab.

- **Printer Name:** The name of the printer.
- **S/N:** Printer's serial number.
- **Control Software:** Version of control software set on the printer.
- **LED Operational Time:** Time of LED operation.
- **RAM Usage:** Volume of the occupied memory (as percentage of the total volume).
- **Storage Usage:** Volume of the occupied storage (as percentage of the total storage).

For detailed information, press **Details**.



- EnvisionCS ver.: Version of control software set on the printer.
- DlpcsCore ver.: Version of the DLPCS Core.
- Control Board ver.: Version of control board.
- HW version: Version of firmware set on the printer.

To return to About Printer tab, press OK.

Software Update

To update Einstein, go to the Software Update tab to see information about the current version of software and the latest version of software, if one is available.

Go to Settings > Printer Settings > Software Update to open the tab.

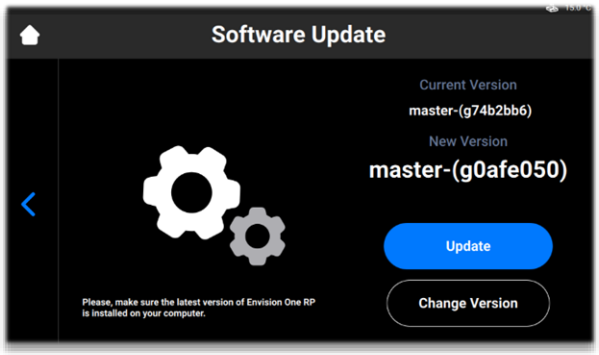
If the latest version is installed, the ChangeLog button displays. Press it to view detailed information about the current version.

If a new version of software is available, the Update button displays.

NOTICE	Do not turn the printer off during update!

To update the software:

1. Press Update.



2. Press Start.

→ The update process starts.

→ The following screen appears:

3. To reboot the printer manually, press **Reboot**. If not, it starts rebooting automatically in 30 seconds.

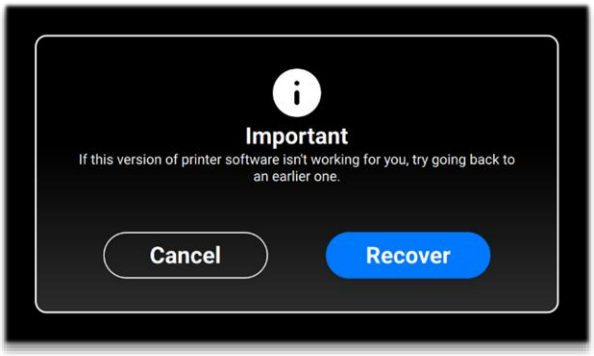
Software Recovery

The **Software Recovery** tab allows you to recover the previous version of software.

Go to **Settings** > **Printer Settings** > **Software Recovery** to open the tab.

→The following screen appears.

1. Press **Recover** to get back to the previous version of Control Software.
   → The following message appears.



2. Press **Recover** to confirm the Software recovery.
   → The process of software recovery starts.

3. To apply changes, reboot the printer. It reboots automatically in 30 seconds. To reboot the printer manually, press **Reboot**.

Printing Statistics

This tab provides the printer usage data for the last 7 days, last 30 days or all operations data.
Go to **Settings** > **Printer Settings** > **Printing Statistics**.
→ The following screen appears.

The following information is shown:

- **Job evaluation data**: Quality of finished jobs (successful, partially successful and failed).
- **Materials usage**: Name and volume of each material in use.
- **Job quantity**: Quantity of completed, aborted, and failed jobs.
- **Average print duration**: Average duration of the job in hours.

- **Damaged material trays**: Number of material trays marked as damaged.

Usage Analytics

Collecting and sending statistics automatically helps **Desktop Health** improve its products.

1. Go to **Settings** > **Printer Settings** > **Usage Analytics**.
2. Check the **Usage Analytics** checkbox to consent to collection and usage of your data.

Move & Calibration

Use the **Move & Calibration** tab to move the build platform and calibrate the Home position.

Home Calibration

Go to **Settings** > **Move & Calibration** > **Home Calibration** to open the tab.
See Calibration.

Move

This tab lets you move the build platform along the Z-axis.
Go to **Settings** > **Move & Calibration** > **Move** to open the tab.

Press the **up** and **down** arrows to move the platform up and down correspondingly.

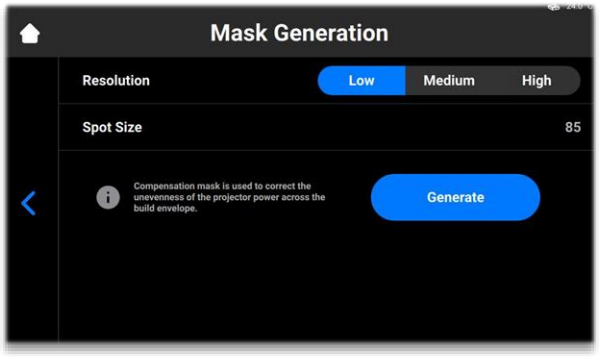
- **Zero position** is the highest position of the build platform along the Z-axis.
- **Home position** is the start position of the build platform for printing.
- **Safe position** is the safe position of the build platform between Zero position and Home position for Calibrate the Home Position.
- **Dry position** is the lowest position of the build platform along the Z-axis. It is used for calibration of the platform while the material tray is empty of the material.

Mask Generation

Note: The USB Light Sensor is still under development and will be available soon.

Step-by-step

1. Insert the empty and clean material tray to the material tray holder.
2. On the main screen of the printer's Control Software, go **Settings** > **Move & Calibration** > **Mask Generation**.
   → The following message appears.



3. Select a resolution (Low, Medium, or High) in the **Resolution** field.

Note: Resolution defines the number of measurements to be done. The higher the resolution, the more measurements are needed.

Note: The spot size is set automatically based on the printer type and build envelope size.

4. Press **Generate**.
   →The following screen appears.

5. Make sure you have the UV protection glasses on. Press **OK** to proceed.
6. Connect your USB Light Sensor to the printer via USB cable.
   → The following screen appears.

Note: Each box on the screen shown above corresponds to a spot of light that is projected onto the calibration plate. Press the required box to adjust its projection power or press **Next** to move to the next box.

7. Place the USB light sensor in the center of the light spot that is projected and press **Next** to start adjustment of projection power.
   → The **Next** button becomes **Pause** button.
   → The projection power is being adjusted.
   → The red **Pause** button becomes active, allowing you to pause the adjustment of the current box.
8. Repeat step 7 for the remaining boxes.
9. To save the newly generated mask and proceed working with the printer, press **Apply** on the confirmation screen that appears.
   → The newly generated mask has been saved.

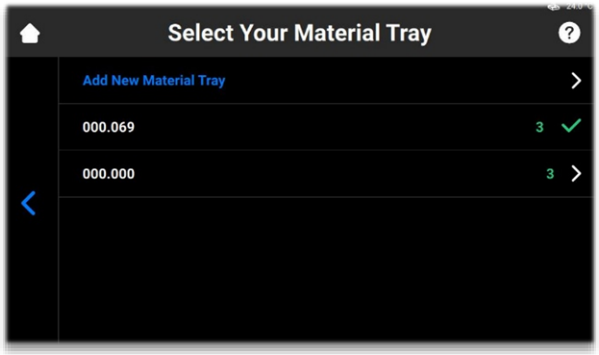
Material Tray

This tab shows the list of material trays and lets you add a new one.

NOTICE	Make sure your material tray does not contain material in it. Material residue in the material tray during the calibration will give a false reading to the sensors.

To add new material tray to the list:

1. Go to **Settings** > **Move & Calibration** > **Material Tray** > **Add New Material Tray**.

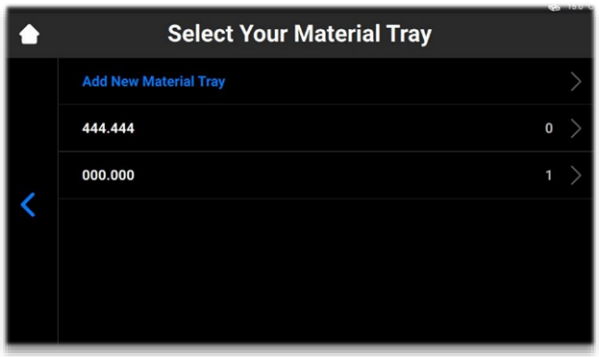


2. Indicate the name of your material tray on the screen that appears. The name should contain 7 digits from 0 to 9.

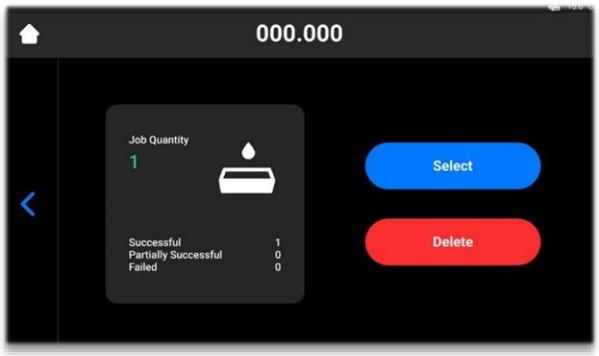
3. Press OK.
   → The material tray is added to the list.

To delete the material material tray from the list:

1. Go to Settings > Move & Calibration > Material Tray.



2. Select the material tray name on the list.



3. Press Delete.
   → The material tray is deleted.

Quick Calibration

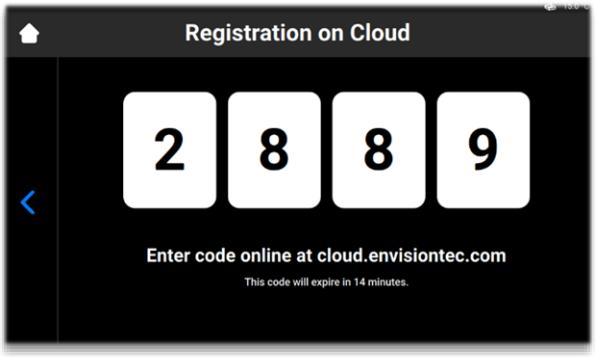
Go to Settings > Move & Calibration > Quick Calibration to open the tab.
See Quick Calibration.

Cloud

Note: The Cloud service is currently not released. Once the ET Cloud is released, you will be able to register your printer in the system.

To register your printer in the system:

1. Go to **Settings** > **Cloud** to open the tab.

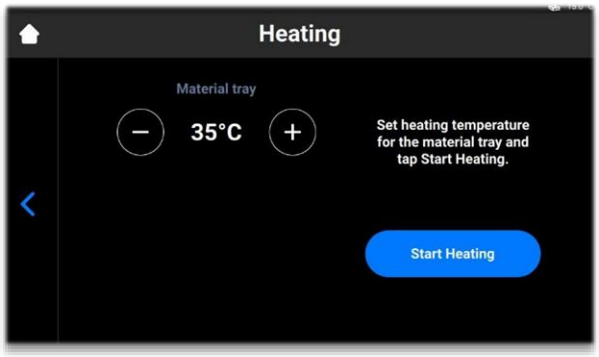


2. Type the obtained code to the registration window at *cloud.envisiontec.com*.

Heating

This tab allows you to preheat the material tray for the best print results.

1. Go to **Settings** > **Heating** to open the tab.

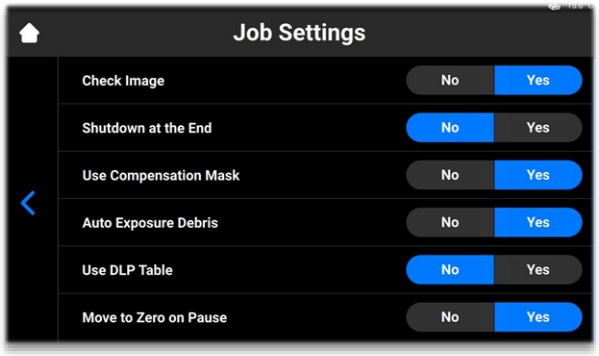


2. Set the required heating temperature for the material tray using the + and - buttons.
3. Press **Start Heating**.
   → The material tray starts heating.

Job Settings

This tab lets you check or change the printer settings.

Press **Settings** > **Job Settings** to open the tab.



Below are provided the available settings and their descriptions in the **Job Settings** menu.

- **Check Image:** Image verification.
  - **Yes.** All layers of the job are checked before starting the job.
  - **No.** The layers are not checked before starting the job.
- **Shutdown at the End:** Shutdown the printer when the job is complete.
  - **Yes.** The printer turns off automatically after completion of the job.
  - **No.** The printer does not turn off after completion of the job.
- **Use Compensation Mask:** Mask application.
  - **Yes.** The mask is applied to the projected image.
  - **No.** The mask is not applied to the projected image.
- **Auto Exposure Debris:** Automatic exposure of the material tray to make cleaning the material tray easier.
  - **Yes.** The material tray is automatically exposed after the job has failed.
  - **No.** The material tray is not exposed automatically when the job has failed. In this case, you can manually perform the material tray exposure after the completion of the build process.
- **Use DLP Table:** DLP table application.
  - **Yes.** The DLP table is used.
  - **No.** The DLP table is not used.
- **Move to Zero on Pause:** Build platform movement when the job is paused.
  - **Yes.** The build platform moves to Zero position.
  - **No.** The build platform stays at current layer of the job.
- **Preheat Material during Delay:** Turns heating material on or off when the print job is delayed.
  - **Yes.** The material is being heated when the job print start is delayed.
  - **No.** The material is not heated when the job print start is delayed.

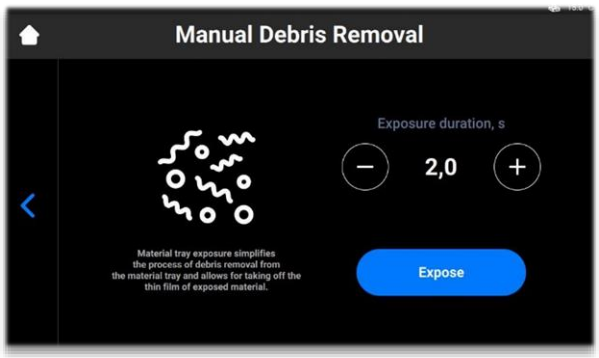
Support

This tab allows you to download the log report from the printer, provide the remote access to the printer, and open the support case right from the printer. See Service and Maintenance.

Manual Debris Removal

To remove debris from the material tray:

1. Go to **Settings** > **Manual Debris Removal** to open the tab.



2. Set the required exposure time using the + and – icons.
3. Press **Expose**.
   → The entire material tray area is exposed.
4. Remove debris from the material tray by lifting the thin film of exposed material.
5. Proceed with the steps indicated in Filter Material if needed.
   → The following message appears.

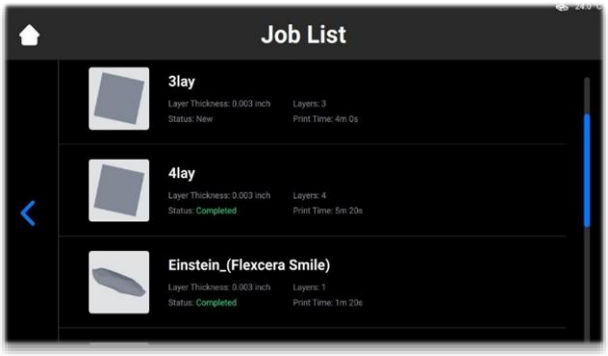
6. Make sure the USB-drive is connected to the printer and press **OK**.
   → The report downloads to the USB drive.

Service Mode

The **Service Mode** tab can be accessed by the technicians and distributors only.

Job List Menu

Press **Job List** on the main screen of the Control Software to open the tab.



Scroll through the list to view different jobs. The following information on job statistics displays:

- **Layer thickness:** Thickness of one layer in µm.
- **Layers:** Number of layers for the print job.
- **Print time:** Estimated time when the job will finish. This calculation is approximate and is updated dynamically after each exposure.
- **Status:** State of the job at a current time.
  - **New** means the job has not been printed yet.
  - **Complete** means that the job has been printed successfully.
  - **Failed** means that the job has corrupted or failed due to material mismatch.
  - **Aborted** means that the job has been aborted manually or cancelled due to mechanical issues (projector/board does not respond, etc.)
  - **Invalid** means that a problem is detected when transferring the job file from Envision One RP® to Einstein Control Software

Envision One RP®

All files to be printed must pass through Envision One RP model processing software before transferring to the printer. Once the models are loaded, automatically fixed, oriented, and supported in Envision One RP, they may be transferred to the printer as a folder containing a series of images and files. This information is used by the printer to build three-dimensional models.
A USB drive is included with every printer. It contains:

- Envision One RP® Software
- Buildstyles for the printer (.bsx)

For information on how to install and operate the Envision One RP®, see Envision One RP® User Guide.

Calibration

The printer is calibrated and tested during fabrication. However, you must also calibrate the printer to guarantee uniform and accurate build results when:

- The printed models are not adhering to the build platform, especially in one corner or half of the build platform.
- The current material tray is replaced with a new material tray.

Adjust Parallelism

NOTICE	Always remove the platform before taking the material tray out of the printer. Failure to do so can result in material dripping down into or onto the printer causing failed builds and damaged equipment.

Equipment:

- Digital calipers
- Scraper
- Material
- RFID material tag
- 3 mm Allen wrench
- Post-processing materials
- Home Position Calibration Cubes.stl file

To check, modify, or fine-tune the printer's parallelism and home position, the **Home Position Calibration Cubes.stl** file is printed. The printer must be powered on for the duration of the parallelism calibration, and the home position calibration.

Note: Parallelism is achieved when the platform and material tray are aligned with each other. Home position is the lowest point of the build platform along Z-axis. It is the start position of the build platform for printing.

1. Download the **Home Position Calibration Cubes.stl** file to the computer where the Envision One RP software is installed.

Note: Home Position Calibration Cubes.stl is a file made of nine blocks. Each block is five millimeters high. This file is located on the USB-drive that is shipped with every **printer, and in the Desktop Health Knowledge Base**.

2. Open the Envision One RP software and select a buildstyle. See the Envision One RP® User Guide.
3. Import the **Home Position Calibration Cubes.stl** file into the Envision One RP software.
4. Print the **Home Position Calibration Cubes.stl** file. See Start Print.
5. Once the print has completed, check if there are nine cubes on the platform.

6. If any of the calibration cubes are missing, press the icon and remove any cured particles that settled to the bottom of the material tray. Remove the cured material and discard.

Post-processing

7. Gently remove the calibration cubes from the build platform using the scraper from the Starter Kit.
8. Clean the calibration cubes.
9. Place the calibration cubes on a clean paper towel lined surface. Air dry in ambient room temperature/humidity for 10 min.
10. Take a close look at each printed calibration cube. The calibration cubes are labeled with numbers 1 through 9.

Figure 11. Calipers measuring calibration Cube 3.

Measure calibration cubes

11. Each calibration cube corresponds to the specific area of the material tray.

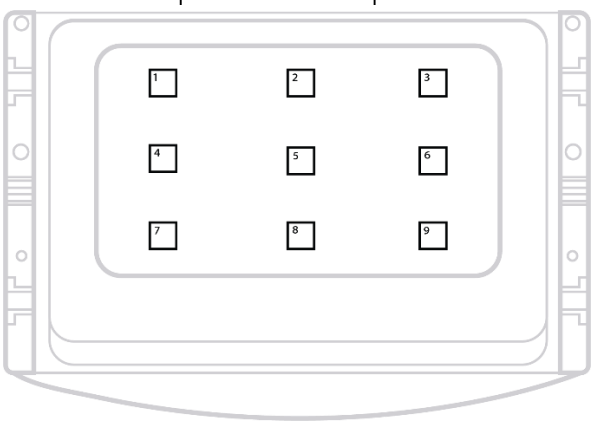


Figure 12. Material tray top view, calibration cube

Measure the height of each calibration cube and write down the location of the calibration cube and its measurement.

a) If all the calibration cubes are within +/- 100 microns, then the printer is paralleled, and no further actions need to be taken at this time.

b) If all the calibration cubes are within 4.85 and 5.0 mm, then the printer's home position is correct, and no further actions need to be taken.

12. If the home position is correct and the printer is not paralleled, move on to Step 13. If the printer is paralleled and the home position is not correct, skip to Manual Home Position Calibration or Automatic Home Position Calibration.

Determine adjustment amount

13. Reference your values in **Step 11** to determine which side needs adjustment. Find the two extremes. One corner is most likely the highest and the opposite is the lowest. Adjust the highest number to make it lower.

Find the difference between the two extremes and divide that number in half. This is the adjustment amount.

Example:

Cube 1 is 4.6 mm high and is the lowest cube.
Cube 9 is 5.0 mm and is the highest cube.
*The difference between Cube 1 and Cube 9 is **0.4 mm**. 0.4 mm divided by 2 is 0.2 mm.*
Cube 9, the highest cube, must be lowered by 0.2 mm.

Make adjustment

15. Parallelism is adjusted via the printer's Set Screws and Driving Bolts.
The printer has four Driving Bolts located on the right and left sides of the material tray base. Manually remove the cover to access the Driving Bolts.

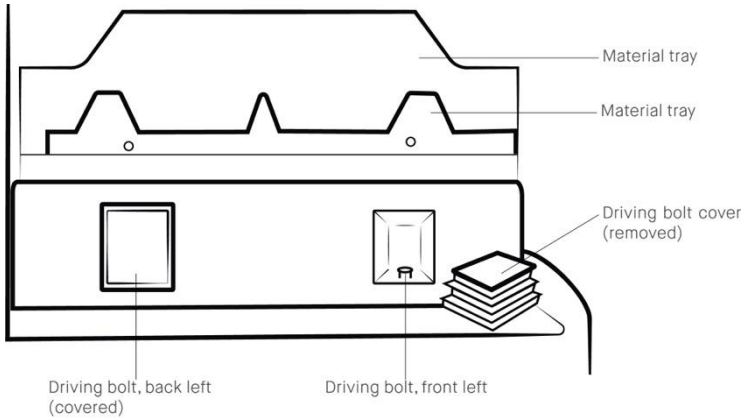


Figure 13. Manually remove the Driving Bolt cover.

The printer has four Set Screws located on the right and left sides of the material tray. They are accessible through the material tray latch in locked position:

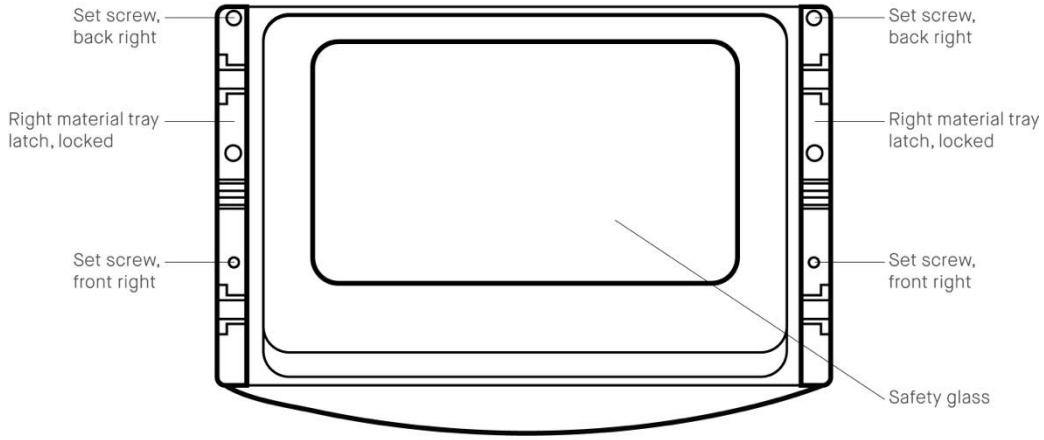


Figure 14. Set Screw locations.

16. To decrease the calibration cubes height measurement:
    a) Turn the **Driving Bolt** counterclockwise (e. g. ¼ turn= 0.1 mm).
    b) Turn the **Set Screw** clockwise (e. g. ¼ turn = 0.1 mm).

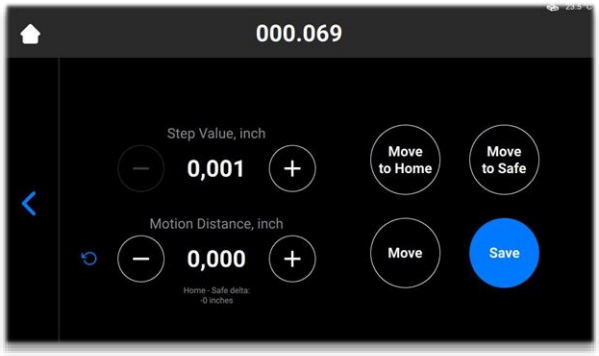
    To increase the calibration cubes height measurement:
    a) Turn the **Set Screw** counterclockwise (e. g. ¼ turn= 0.1 mm).
    b) Turn the **Driving Bolt** clockwise (e. g. ¼ turn = 0.1 mm).
17. Remove the material tray and set it aside on a clear paper towel-lined surface. Lock the material tray latches. Adjust the Driving Bolt and the Set Screw with the 3 mm Allen wrench. Apply adjustments cautiously and precisely.

Example:
Cube 9, the highest cube in our example, must be lowered by 0.2 mm.
¼ turn equals a 0.1 mm adjustment.
Cube 9 must be adjusted by ½ turn for a 0.2 mm adjustment.
Cube 9 corresponds to the front right corner of the material tray.
Adjustments should be made to the front right Set Screw and Driving Bolt.
Use the 3 mm Allen wrench to turn the front right Driving Bolt counterclockwise ½ turn, then turn the front right Set Screw clockwise ½ turn.

18. Install the material tray on the printer and lock the material tray latches. Print the **Home Position Calibration Cubes.stl** file again and measure the cubes. Adjust the parallelism again as needed.
    → Contact Service and Support for assistance if parallelism cannot be achieved.

Manual Home Position Calibration

1. Remove the build platform from the printer and place it aside on a clean work surface. See the Remove Build Platform from Printer section for details.
2. Go to **Settings** > **Move & Calibration** > **Home Calibration**.
   → The following screen appears.



3. Press **Move to Home**.
   → The build platform holder moves down the Z-axis to the current home position.
4. Set the value of a step by pressing the - and + icons of **Step Value**. This is the increment used for the **Motion Distance**. The Step Value increments can be set to 0.01, 0.10, 1.00, and 10.00.
5. Set a motion distance of the platform by pressing the - and + icons of **Motion Distance**. This is the total distance the platform moves.

> **Note:** The positive values move the platform up; the negative values move the platform down. Pressing the refresh icon resets the motion distance value to zero.

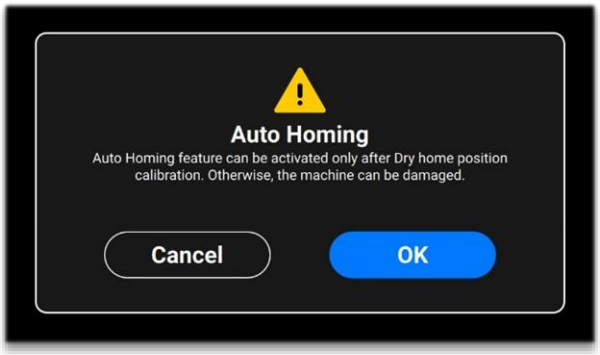
6. Reference the values in **Step 11** of Adjust Parallelism to determine the new home position. The adjustment should be made based on the average height of the calibration blocks.
   a) If the average height measurement is below 4.90 mm, move the platform up pressing **Move** the required number of steps.
   b) If the average height measurement is above 5.10 mm, move the platform down pressing **Move** the required number of steps.
7. Set the motion distance to the required adjustment. Press **Move** to make the adjustment. Press **Save**.
   → The build platform holder starts moving up to the top of the Z-axis.
   → The new home position is set.

Automatic Home Position Calibration

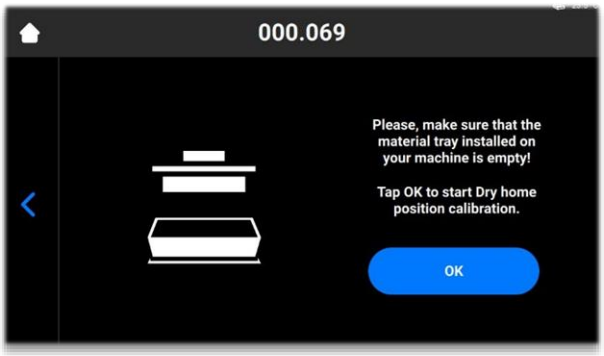
Note: The Automatic Home Position Calibration or Auto Homing is only possible if the printer is equipped with Load cells, therefore enabling the Dry position calibration.

Step-by-step

1. Go to **Settings** > **Move & Calibration** > **Home Calibration** > **Auto Homing**.
   → The following message appears.



2. Press **OK**.
   → The following screen appears.



Note: Make sure your material tray does not contain material in it. Material residue in the material tray during the calibration will give a false reading to the sensors.

3. Press **OK**.
   → The platform starts moving to its Dry position. Once the platform finds its Dry position, it starts moving to Zero position.
   → Dry position calibration has been saved.

Use Grey Mask

The Grey Mask is the Compensation Mask for the Einstein printer. It is set in the factory.

To enable the Grey Mask on your printer, proceed as follows:

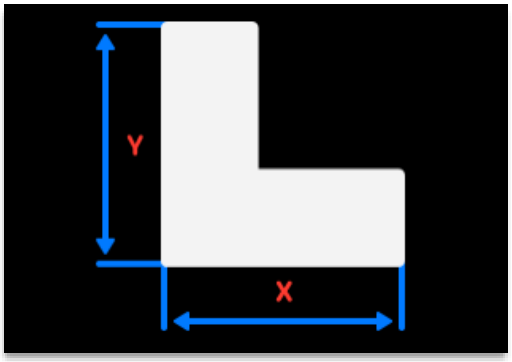
1. Go to **Settings** > **Job Settings** on the screen of the Control Software.
2. Make sure the **Yes** option is selected in the **Use Compensation Mask** field.

Quick Calibration

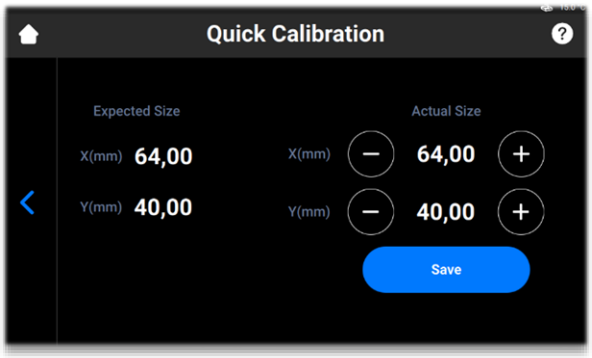
Note: This feature is still under development and will be available very soon.

The printer calibration allows you to set up compensation coefficients to tune the accuracy of your printer.

1. Print the L-shaped job.
2. After the L-shaped job is printed, clean it well and post-cure the model as required for the used material.
3. Measure the printed model as shown below using a caliper.



4. Go to **Settings** > **Move and Calibration** > **Quick Calibration**.



5. Enter the obtained X and Y values to the appropriate fields.
6. Press **Save** to confirm.

Start Print

CAUTION	Risk of injury from crushing caused by automatically moving printer parts. The printer may only be operated by instructed and specially trained personnel. Make sure that all persons are clear of the danger zone. The printer may only be operated if the protecting devices are working properly.

CAUTION	Risk of injury Do not use other materials than the materials delivered by Desktop Health. Observe the relevant Material Safety Data Sheets for the materials. Use the appropriate personal protective equipment.

Note: The execution of job preparatory activities, including date and performing operator, shall be documented for reasons of traceability.

Check Z-axis

First, make sure the printer has its Z-axis slide activated:

1. Go to **Settings** > **Move & Calibration** > **Move** on the main screen.
2. Press the **Up** and **Down** arrow icons and make sure the building platform moves along the Z-axis. If the build platform does not move up, the reason could be that it has already reached its highest point.

Create Print Job in Envision One RP

To create the job in Envision One RP:

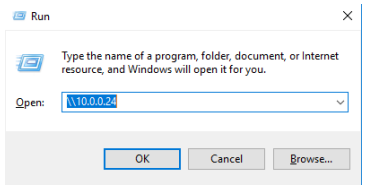
1. Open Envision One RP Software.
2. Select the printer, material, and layer thickness.
3. Add a model.
4. Orient a model and add supports as needed or use the **Autopilot** feature.

5. Save the build job to a USB or transfer directly to the printer.

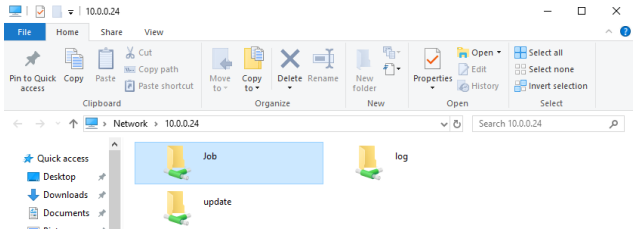
Load Job File

To load a job to the printer:

1. Type **Run** into the Windows search field or use <**Windows**> + <R> hotkey on your computer keyboard.
   → The **Run** window opens.



2. Enter the IP address of the printer, e. g.: \\10.0.0.24.
   → The Windows file explorer opens, showing the folders on the printer.



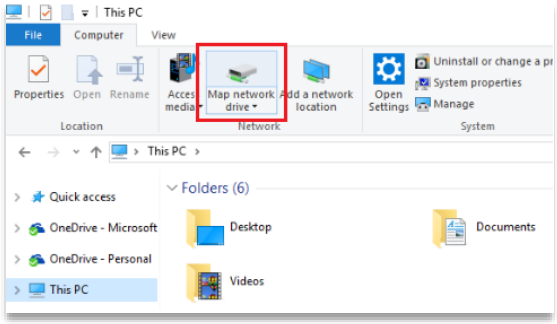
3. Open the **Job** folder.
4. Put the job files to the folder.
   → All the files from Job folder are now shown in the Job List tab.

Map Network Drive on Windows

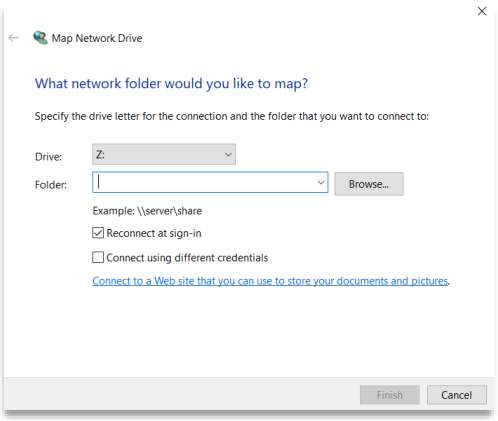
Map a network drive to access the Jobs folder from File Explorer in Windows without having to search for it or type its network address each time.

Windows 10

1. Open File Explorer from the taskbar or the **Start** menu, or press the **Windows logo key** + E.
2. Select **This PC** from the left pane.
3. On the **Computer** tab, select **Map network drive**.



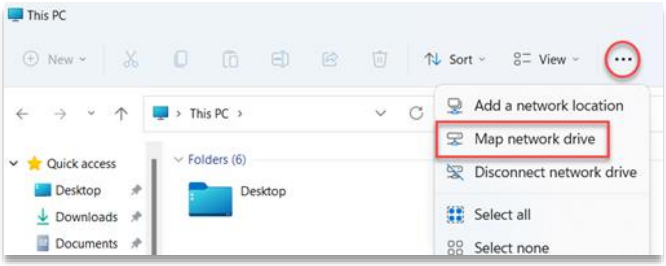
→ The following screen appears.



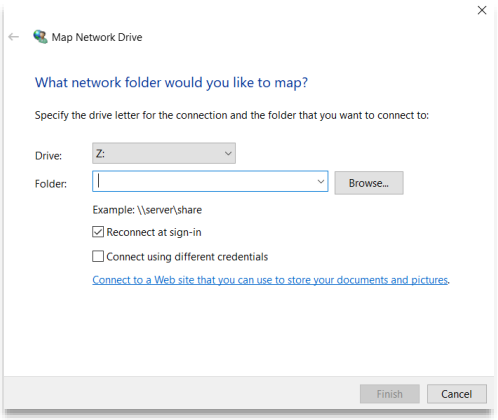
4. In the **Drive** drop-down list, select a drive letter (you can select any available letter).
5. In the **Folder** field, type the path of the folder or computer, or select **Browse** to find the folder or computer. To connect each time you sign in to your PC, check the **Reconnect at sign-in** checkbox.
6. Press **Finish**.

Windows 11

1. Open File Explorer from the taskbar or the **Start** menu, or press the **Windows logo key** + E.
2. Select **This PC** from the left pane.
3. On the File Explorer ribbon, select **More** > **Map network drive**.



→ The following screen appears.



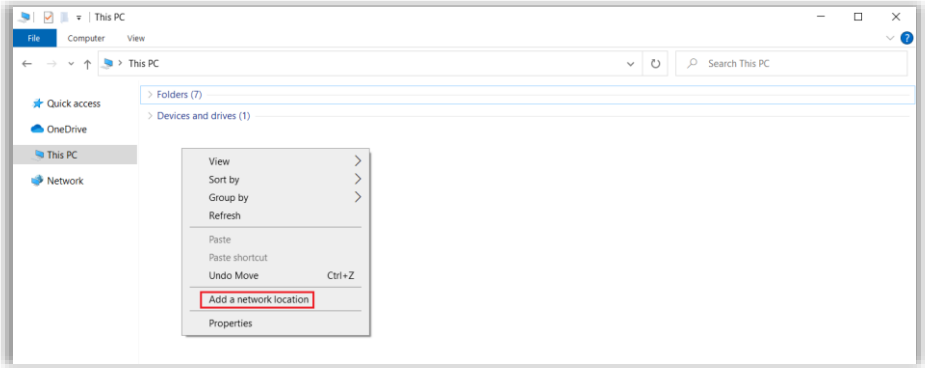
4. In the **Drive** drop-down list, select a drive letter (you can select any available letter).

5. In the **Folder** field, type the path of the folder or computer, or select **Browse** to find the folder or computer. To connect each time, you have to sign into your PC and check the **Reconnect at sign-in** checkbox.
6. Select **Finish**.

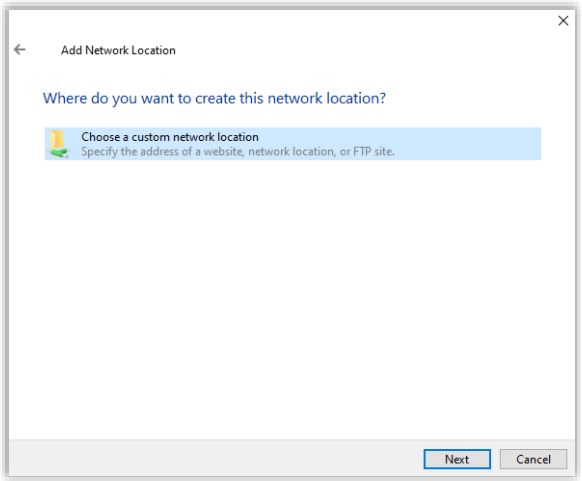
Create a Shortcut

To create a shortcut to a network place in Windows allowing you to access FTP and Windows file shares, proceed as follows:

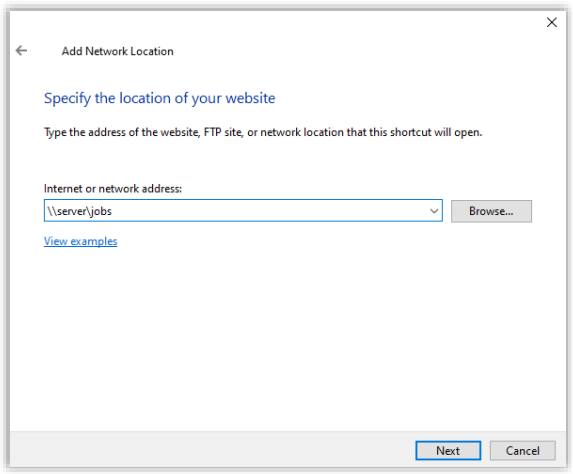
1. Open the **Start** menu, then search and press **This PC**.
2. Right-click on any empty space and select **Add Network Location**.



3. Press **Next** on the **Add Network Location Wizard** that opens.
4. Select **Choose a custom network location** and press **Next**.



5. Type in the address, FTP site, or network location, then select **Next**.

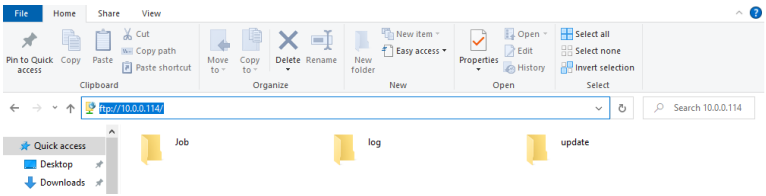


6. In the screen that appears, type a name for the network and select **Next**.
7. Press **Finish** on the **Add Network Location Wizard** screen.
   → The location is now listed under **Network Locations** tab in **This PC**.

Load a Job via FTP

To load a job to the printer:

1. Enter the IP address of the printer, e. g.: ftp://10.0.0.114.
   → The Windows file explorer opens, showing the folders on the printer.

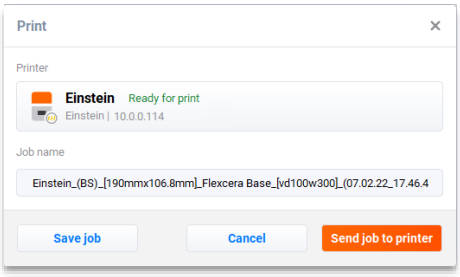


2. Open the **Job** folder.
3. Put the job files to the folder.
   → All the files from Job folder are now shown in the **Job List** tab.

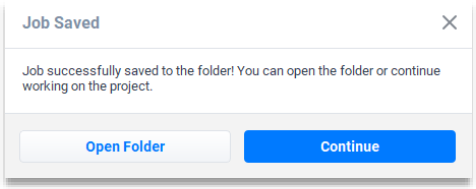
Load Job from USB Drive

To save a Job to USB drive:

1. Connect the USB-drive to the PC with the installed Envision One RP.
2. Open the Envision One RP.
3. Create the job you want to save.
4. Select the job you want to save.
5. Press **Print**.
   → The following window appears.



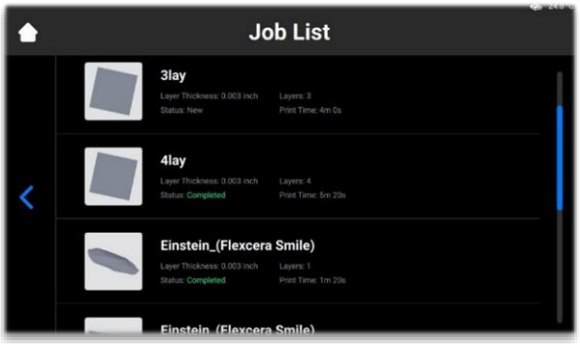
6. Press Save job.
   → The folder selection dialog box appears.
7. Open the USB-drive folder you want to save a job to and press Select Folder.
   → The job folder with all the required data is saved to the selected USB-drive.
   → The following window appears.



8. Press either:
   → Continue to exit the Save job dialog box; or
   → Open Folder to open the Job folder.

To load a job directly from USBdrive:

1. Upload the required job to the USB-drive as described above.
2. Insert the USB-drive with the uploaded job into the corresponding plug of the printer.
   → The job is automatically added to the Job List on the home screen.



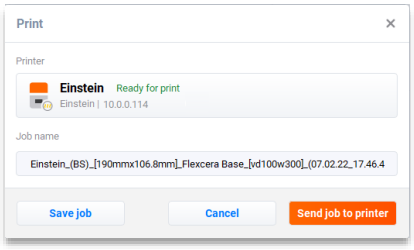
Note: The icon indicates that USB drive is connected to the printer.
The icon in the Job list indicates that the job was added via USB drive.

Load Job from Envision One RP

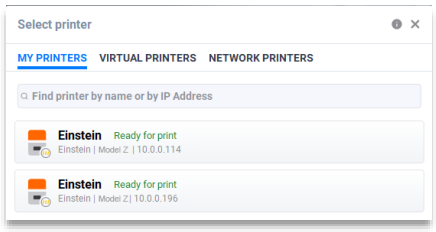
1. Open Envision One RP.

   Requirements: At least one opened and selected 3D model.

2. Press the **Print** button in the **Print Menu**.
   → The following window appears.



3. Press the **Printer** field.
   → The following window appears.



4. Select a printer to send your job to and click on it.
   → The job is sent to the selected printer.

Note: The Printers in the network can have the following statuses: **Ready for Print**, **Printing**, **Offline**.
You cannot send a job file to a printer with the **Offline** status.

Verify Einstein Is Ready to Print

NOTICE	Checking the printer ensures the highest quality of printed models and minimizes the risk of errors or printer malfunctioning.

Before beginning a print, always check the following things:

1. The hood is closed.
2. The flat surface of the build platform is clean and free of all cured material, and the build platform torque knob is secured in position.
3. The material tray is secured in position.
4. The material tray is filled to the fill line, and all material handling instructions are followed for the specific material used (mixing, temperature, etc.)
5. The material tag is on the material tag reader, and the tag matches the material in the tray and in the buildstyle.

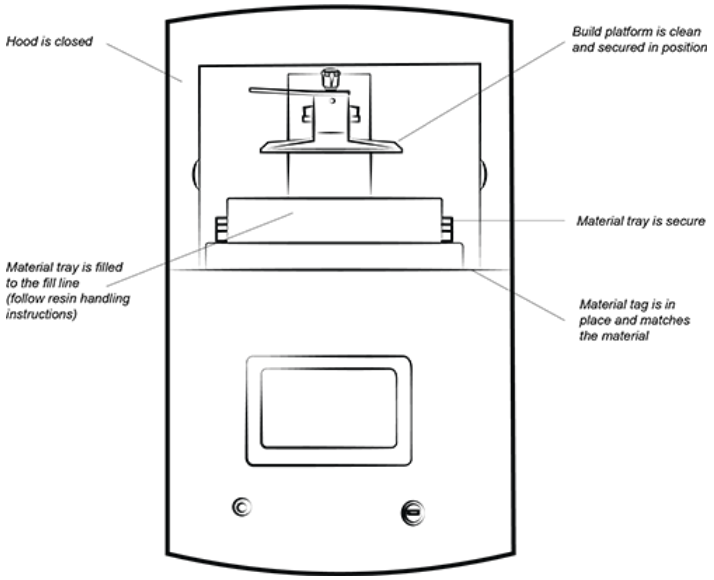


Figure 15: The Einstein Printer

Start Print

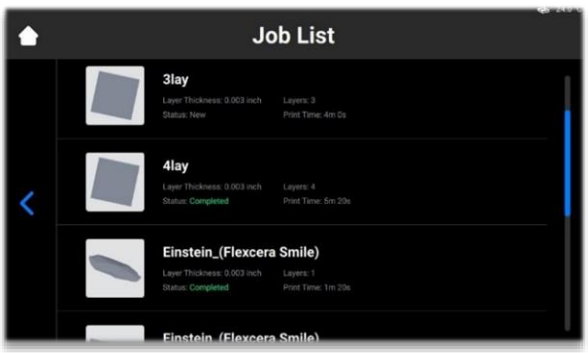
NOTICE	Make sure the build platform is clean and the material tray is in place and has material in it before starting a print to prevent failed builds and damage to the equipment.

Note: Before starting a print, the software checks the buildstyle in the job matches the material tag on the printer. If they do not match, then the job will not start.

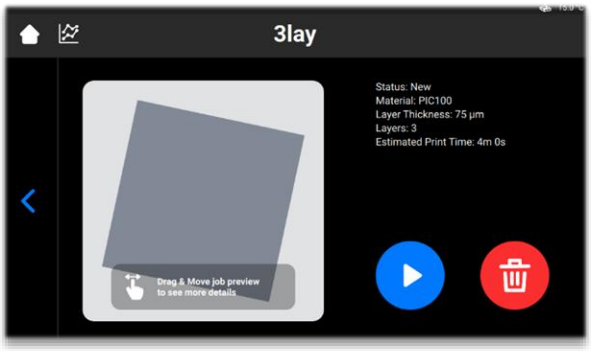
Note: To pause a job, use the **Pause Job** button. All other methods will likely result in a failed build. Proceed with attention.

To start a job:

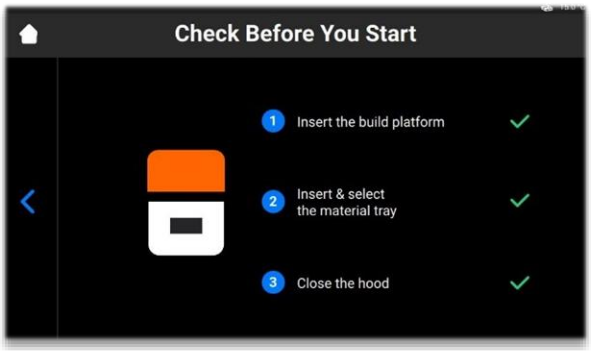
1. From the **Home** screen, select the **Job List**.



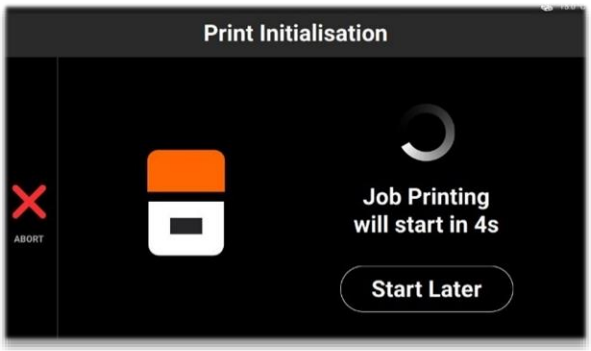
2. Select the job folder from the Job List.



3. Press the **Play** button to start a job.
   → The system checks if the printer is ready to start a print.



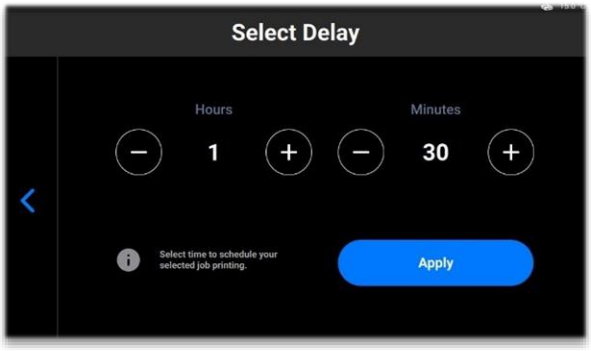
   → The following window appears.



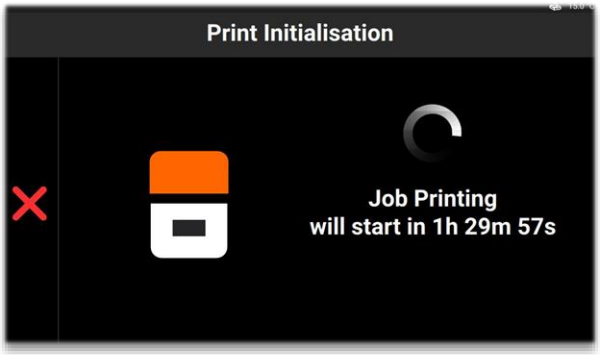
4. To start the job now, wait until the job starts.
   To delay your job print, press **Start Later**.

Note: The minimum delay time is 15 minutes. The maximum delay time is 999 h 45 min.

   → The following window appears.



5. Set the required delay time using the + and - icons in the Hours and Minutes fields and press Apply.
   → The print initialization window appears.



6. Wait until the job starts.
   → The build platform homes.
   → The job starts.

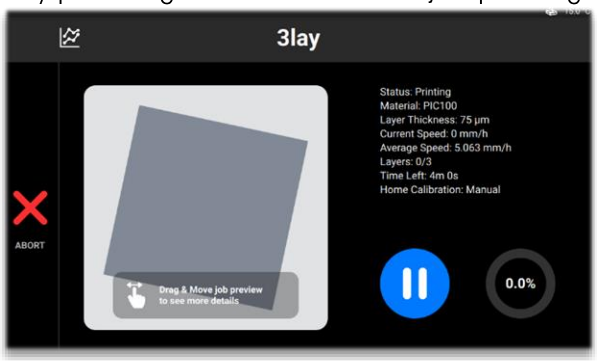
Stop Job

To stop or abort the print, the following options are available:

- Abort Job
- Delete Job

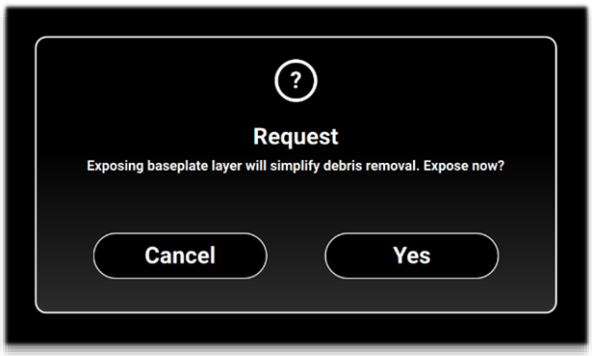
Abort Job

The job can be aborted by pressing the ❌ icon in the job printing window.



→ The following window appears.

1. In the confirmation window, select Yes.
   → The job has been aborted.
   → The following window appears.



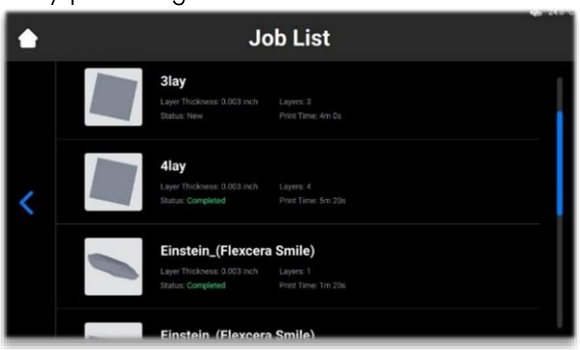
- If there is no need to simplify the process of cleaning the material tray, press Cancel.
- To simplify the process of debris removal from the material tray, press Yes.
  → The job has stopped.
  → The whole material tray area has been exposed.

2. Remove debris from the material tray by simply taking off the thin film of exposed material and following the procedure for Filtering Material.

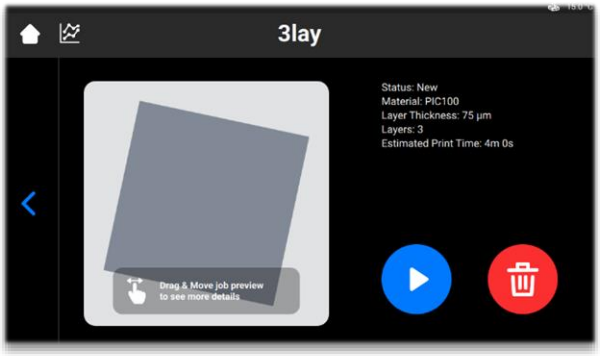
Delete Job

To delete the job from the Job list:

1. Enter the Job List by pressing the Job List on the main screen.



2. Select the job you want to delete from the list of jobs by pressing it.
   → The following screen appears.



3. Press the **Waste Bin** icon to delete a job file.
   → The following confirmation window appears.

4. Press **Delete** to confirm a job file removal.

Post-Process

Post-Cleaning Supplies and Post-Curing Equipment

Recommended list of cleaning supplies:

- Spray bottle (optional).
- Plastic containers with lid for holding the isopropyl alcohol.
- Isopropyl alcohol (99%) for cleaning uncured material on the surface of printed models.
- Soft artist or make-up brush.
- X-Acto knife/surgical blade or small nail snips for removing supports from models.
- Air compressor for removing isopropyl alcohol and uncured material from the surface of printed model.
- Paper towels.
- Post curing unit.

Remove Build Platform from Printer

When a print job is successfully completed, the build platform rises to the top of the Z-axis tower. The build platform with the printed models is ready for removal. Have a paper towel ready to catch potential drops of uncured material.

To remove the build platform with printed models:

1. Open the printer's hood.
2. Place one hand on the build platform handle. Loosen the build platform torque knob with the other hand.
3. Lightly cradle the bottom of the build platform with the paper towel. This will help to prevent dripping while removing the build platform from the printer.

Detach Models from Build Platform

CAUTION	Risk of injury. As handling chemicals puts you at risk of coming into contact with corrosive chemicals, being burnt, inhaling poisonous vapors, etc., always put on suitable protective clothing (gloves, protective goggles, etc.) before working with construction substances. Take utmost care to avoid getting any chemicals in your eyes or breathing the chemical vapors in. Always wash your hands thoroughly afterwards with soap and water only. Don't use Isopropyl alcohol to wash your hands if you come in contact with materials. Take care not to spill any chemicals.

Once the job is complete, the printed models will hang off the build platform.
To remove the models, complete the following steps:

1. Place the build platform on its side in the processing zone as shown in the diagram below. Watch the material so it doesn't leak into the build platform cavity. Ensure the magnet stays clean.
2. Hold the build platform handle with one hand to steady the platform.
3. Use the scraper from the Starter Kit to gently detach models from the build platform. Angle your tool roughly 30 degrees from the platform and move the blade while applying a light amount of pressure.

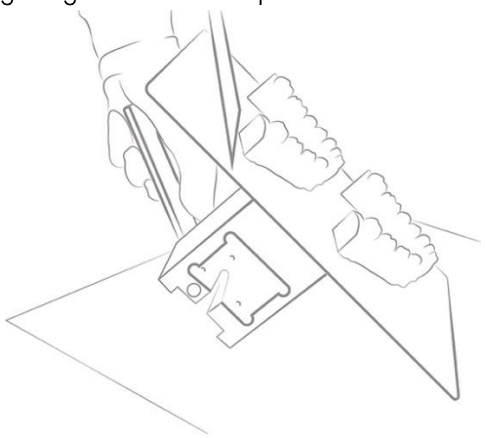


Figure 16: Separation of a model from build platform

4. Place each model on a paper towel to catch the excess material as it drips.

Note: The models appear to be glossy because uncured material covers the surface.

Note: If the model doesn't begin to separate easily, move to a different area, working your way around the model until it safely dislodges from the build platform.

Reset Printer After a Print

1. Once the models have been removed, use the scraper to remove any remnants of the cured material from the surface of the build platform.
2. Wipe the entire platform dry using a paper towel. The previous print job shouldn't be visible on the platform.
3. Install the build platform on the printer and tighten the build platform torque knob.
4. Close the hood.

→ The Einstein printer can now begin printing the next loaded print job.

Clean Printed Models

The PWA 2000 Parts Washing Apparatus is the recommended washing unit for the models printed with non-medical materials using the Einstein printer. To get the information on how to clean a printed model with PWA 2000, see PWA 2000 Technical Guide provided with your PWA 2000.
Contact your distributor for further details on parts washing units for the printer. Clean the printed models following the instructions for your washing unit.

Post-Cure Printed Models

The Otoflash Parts Curing Apparatus is the recommended curing unit for the models printed with medical materials using the Einstein printer. To get the information on how to cure a printed model with Otoflash, see Otoflash Technical Guide provided with your Otoflash.

The PCA 4000 Parts Curing Apparatus is the recommended curing unit for the models printed with non-medical materials using the Einstein printer. To get the information on how to cure a printed model with PCA 4000, see PCA 4000 Technical Guide provided with your Otoflash.

Finish Post-Processing of Printed Model

Finishing is the final step in post-processing of the printed parts. With finishing, grind all traces of supports and polish models as needed, depending on the final part application.

1. Grind support bumps using a fine burr and rotary tool, or manually use sandpaper.
2. Remove dust particles by quickly spraying the model(s) with 99% IPA in a spray bottle, and dry immediately with compressed air.

Service and Maintenance

CAUTION	Risk of injury from crushing caused by automatically moving printer parts. Body parts may be crushed by movements of the build platform. The printer may only be operated if the protecting devices are working properly.

CAUTION	Risk of injury from slipping, stumbling or falling of persons through loose cables, objects or liquids on the floor. Keep the printer area clean and dry. Make sure that no loose cables or objects are lying on the floor of the printer area. Place all printer cables carefully to prevent trip hazard. After repairing the printer, place cables back carefully to prevent trip hazard. Remove tools and other objects from the printer. Inform the personnel of residual risks.

CAUTION	Risk of injury caused by the ergonomics of the printer. Maintain a healthy posture. Instruct the personnel accordingly.

The following sections contain information on service and maintenance of the printer. Adhering to regular maintenance is crucial for efficient use of the printer.

- Operational Maintenance describes the operational maintenance procedures.
- Auxiliary Materials and Consumables gives an overview of all auxiliary materials and consumables.

Customer Service

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Email: support@desktophealth.com

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EnvisionTEC US LLC
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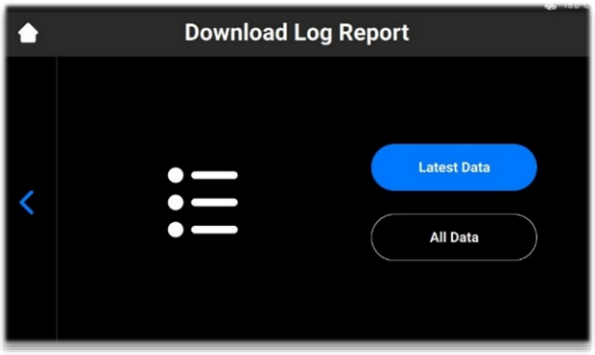
USA

Phone: 866-344-3578
Email: support@desktophealth.com

Download Log Report

To download the log report with all the printer information to the USB-drive:

1. Connect the USB-drive to the printer.
2. On the home screen of the printer, go to **Settings** > **Support** > **Download Log Report** to open the tab.



3. Press **Latest Data** to download the latest printer information; or **All Data** to download the report containing all information received during printer operation.

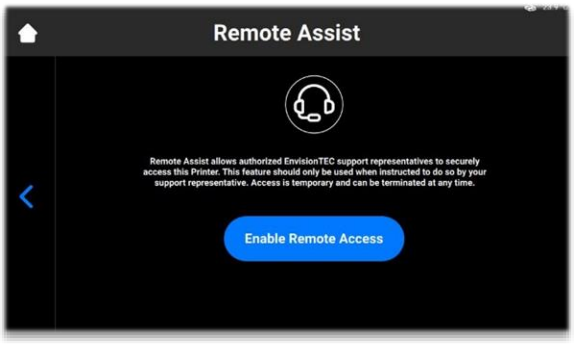
To send the log report to Service and Support:

1. Open the USB-drive folder.
2. Find the file with the similar name: snapshot_2019-09-26T14-01.zip.
3. Send it to your personal Service and Support manager.

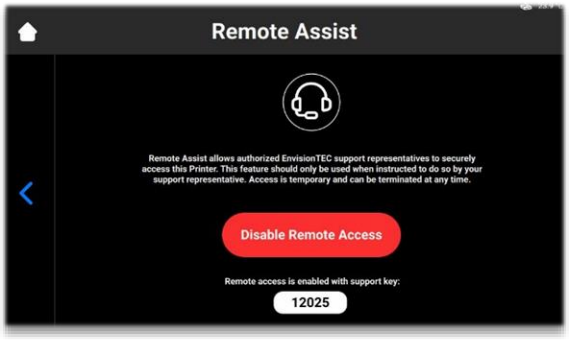
Remote Assist

This feature allows you to grant remote access to the support representative.

1. Go to **Settings** > **Support** > **Remote Assist** > **Enable Remote Access**.



→ The following screen appears.

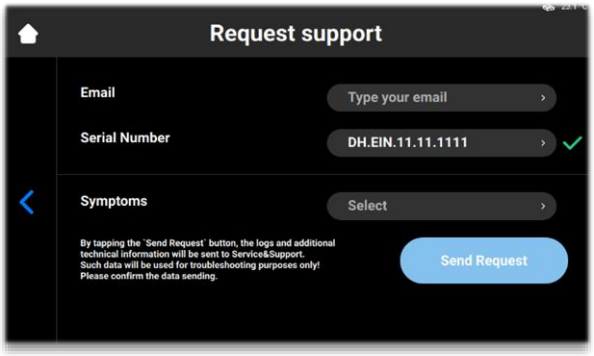


2. Provide the 5-digit support key to your support representative.
   → The remote session starts.
3. To terminate the remote session, press Disable Remote Access.

Request Support

This feature allows you to open the support case from the printer.

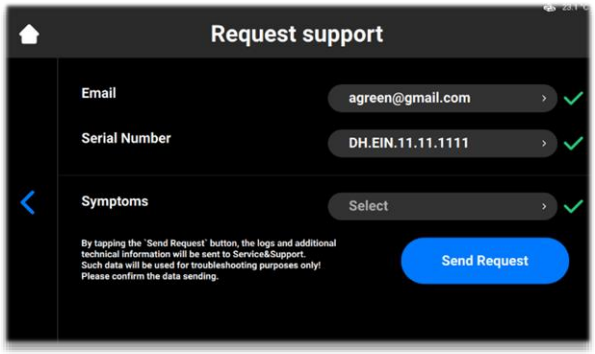
1. Go to Settings > Support > Request support.



2. Press the Email field to select the existing email address. Otherwise, press Add new email to indicate the needed e-mail address. Press OK.
3. Type the printer serial number in the Serial Number field.
4. Press Symptoms, select the issue(s) by checking the corresponding box.

5. If the issue is not in the list, press Other, type the issue using a keyboard, and confirm with OK.

6. Press the back button to save the changes and return to **Request support** menu.
   → Once all fields are filled, they are marked with green checkmarks.



7. Press **Send Request**.
   → Your request is submitted. The next available technician will assist you.

Operational Maintenance

NOTICE	Complete the maintenance tasks according to the table below and the intervals specified therein.

Note: Document the maintenance activities, including date and performing operator.

The operational maintenance helps ensuring a smooth and efficient production process. The operating personnel can carry out these tasks after being trained accordingly.

Task	Maintenance Interval
Cleaning the build platform	Print-by-Print
Cleaning the material tray	Print-by-Print
Cleaning the printer casing	Print-by-Print
Cleaning the hard drive space	Weekly
Cleaning the PWA 2000 or Washing Containers	Weekly

Cleaning dust	Weekly
Power Cycling	Weekly
Cleaning the touch screen	Monthly
Checking the safety equipment	Every time the printer is put into operation and every time the printer has been repaired.

Clean Build Platform

NOTICE	Use 99% IPA away from the material tray and thoroughly wipe all IPA completely from the build platform before installing it back onto the printer!

Time needed: Approximately two (2) minutes.

Maintenance frequency: After each print.

To keep your printer in optimal printing condition, the build platform should remain as clean as possible between print jobs. The build platform should be cleaned when:

- It becomes sticky.
- There is cured material around the build platform clamping handle.
- When changing the material type.

Step-by-step

1. Clean the connection cavity at the top of the build platform using a Q-tip with 99% IPA.
2. If too much material has cured in the torque knob screw threading, replace the build platform.
3. Clean the surface of the build platform using a clean paper towel.
4. Check every surface for material, buildup, or stickiness.
5. Clean the excessive buildup using a small amount of 99% IPA on a clean paper towel or Q-tip.
6. Hard spots of cured material can be carefully scraped off using the paint scraper from the Starter Kit.

Clean Material Tray

⚠ CAUTION	**Risk of injury.** Always wear nitrile gloves when handling the items that come into contact with uncured resin.

NOTICE	Always remove the platform before taking the material tray out of the printer. Failure to do so can result in material dripping down into or onto the printer causing failed builds and damaged equipment.

NOTICE	Always clean the material tray each time you need to change the material for printing parts on the printer.

NOTICE	Do not pour material from your material tray into the bottle it came from. This can potentially contaminate the whole bottle of material and ruin it.

NOTICE	Never use chemicals inside the material tray. This will contaminate and ruin any material you put into the material tray.

Time needed: Approximately five (5) minutes.

Maintenance frequency: Weekly.
The material tray is a consumable with an approximate lifespan of up to 250 prints. Order a new material tray before the current tray expires or becomes damaged. The expired material tray can be disposed of.

The **Pre-Stretched Assembly (PSA)** is located inside the material chamber and is comprised of a film and a plastic frame.

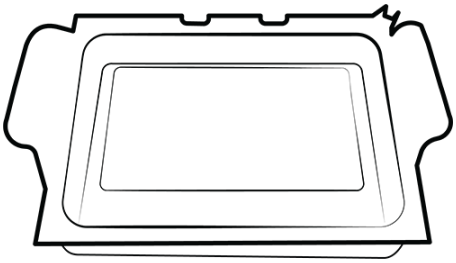


Figure 17: Pre-stretched Assembly

1. Check the film at the bottom of the material tray whenever the material is removed.
2. Look for pinholes, punctures, ripples, and other signs of stress. A slightly cloudy film is normal and will not affect the print quality.
3. Use Manual Debris Removal to remove cured material from the surface of the film assembly at the end of a print, or access it by navigating to **Home** > **Settings** > **Manual Debris Removal**.
4. Once the exposure time is set on the **Manual Debris Removal** page, press **Expose**. The projector exposes the full printing area to light for the set exposure duration. Use the rubber spatula from the Starter Kit to gently remove the cured material from the surface of the film assembly.

The Safety Glass is under the material chamber and consists of a glass panel and a metal frame inside the Einstein printer.

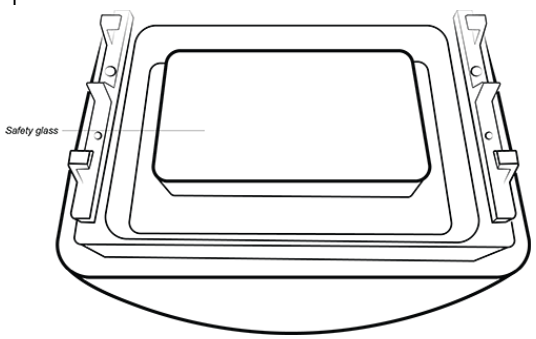


Figure 18: Safety glass

1. Check the safety glass for streaks or fingerprints, which can affect print quality.
2. Wipe the safety glass with an ammonia-free glass cleaner when needed.

Note: If the glass cracks or is badly scratched, then the material tray will need to be replaced.

Clean Printer Casing

Time needed: Approximately two (2) minutes.

Maintenance frequency: After each print.

Overview

The printer's metal casing protects the internal components from damage. To avoid spilling material on the casing, always hold a paper towel under the build platform and the material tray while installing or removing. Once spilled, the material cures to the casing and it is difficult to remove it.

Step-by-step

1. Wipe the spilled material as soon as it touches the printer before it cures.
2. Remove any spills with a dry paper towel first, then lightly spray a second paper towel with IPA and wipe away any residue.

Note: If rubbed with too much pressure or for too long, the casing may become discolored.

Clean Hard Drive Space

Time needed: approximately five (5) minutes

Maintenance frequency: Weekly

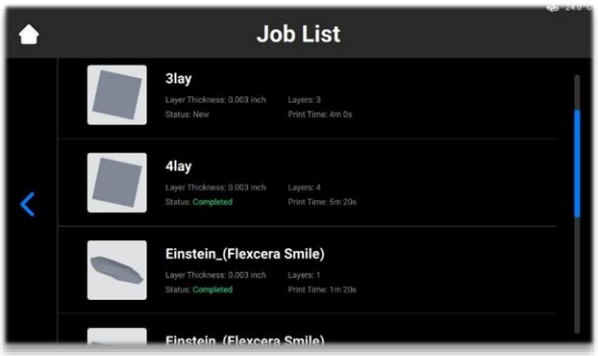
Overview

The Einstein printer has an internal PC that stores a limited amount of data. It is a good practice to remove print job folders from the printer in order to free up space. When the

majority of the hard drive space has been occuppied, the printer may show error messages or respond slowly to touch screen commands.

Step-by-step

1. Turn the printer on.
2. On the Einstein main screen, press **Job List**.



3. Select the print job folder name.
4. Press the **Waste Bin** icon.
   → The unwanted print job folder is now erased from the printer.
5. Repeat these steps until all unwanted print job folders have been removed.

Clean PWA 2000 / Washing Containers

Time needed: Approximately fifteen (15) minutes.
Maintenance frequency: Weekly.
Overview
The PWA 2000 needs to be emptied when the bottom of the container is no longer visible. The 99% IPA will collect particles of uncured material over time. If using plastic washing containers instead of the PWA 2000, the dirty bath will need to be emptied when the bottom of the container is no longer visible.
Step-by-step
Check your local protocol for safe handling of 99% IPA.

If using the PWA-2000:

1. Remove the washing compartment from the PWA 2000.
2. Pour the IPA from the pour spout into an IPA recycling container.
3. Wipe down the interior of the washing compartment with a clean paper towel.

If using plastic washing containers:

1. Remove the used IPA from the dirtier bath.
2. Wipe the container clean using a paper towel.

Clean Dust

Time needed: Approximately five minutes.
Maintenance frequency: Weekly.
Overview
Dust may accumulate on, near, or inside of the Einstein. High levels of dust accumulation can cause the printer to overheat.

> **Note:** To protect the internal hardware, the printer automatically shuts down if it reaches the maximum internal temperature of 49 C/120 F.

Step-by-step

1. Listen to the fan for inconsistency, stress, or obstructions when the printer is powered on.
2. To remove dust, power down the printer, disconnect the power cable and then wipe the vents and fan with a microfiber cloth.
3. After the printer has been cleaned, look down through the safety glass under the material tray to make sure that there isn't any dust or debris on the lens.

Power Cycle

Time needed: Approximately five minutes.
Maintenance frequency: Weekly.
Overview
It is recommended to power cycle the printer under any of the following conditions:

- The printer is running slowly.
- The printer was recently updated.
- The printer has not been powered down in a week

Maintain Materials

Time needed: Approximately five (5) minutes to mix material, depending on the material, and other fifteen (15) minutes to empty and clean the material tray.

Maintenance frequency: After each print.

> **Note:** See the corresponding Material Safety Data Sheets for the printing material for details.

To maintain materials:

1. Protect material in the material tray from ambient light by keeping the hood closed.
2. Mix the material in the material tray before each print using the rubber spatula from the Starter Kit. To do this:
   - Lightly skim the spatula back and forth across the surface of the material in the tray.
   - Mix carefully to avoid puncturing or tearing the film at the bottom of the material tray.
   - Mix the material until it's a completely uniform color.
3. Check the material for solids or debris. If found, filter the material. To do this:
   - Remove the material tray from the printer.
   - Set the funnel and cone-shaped paint filter on top of a separate opaque storage bottle.

- Pour the material out by tipping a front corner of the tray.
- Use the rubber spatula to assist in guiding the material into the filter.
- When finished, dispose of the filter and clean the funnel with a dry paper towel.

Check Safety Equipment

NOTICE	All emergency stopping devices and protection doors must be checked one by one and separately. In case of defective safety equipment, shut the printer down immediately and secure it against being switched on again.

Filter Material

It is recommended to filter the material after each failed build. Use a paint strainer and run your material through it. The paper paint strainers are the most suitable, as they can be discarded after each use.
Do not use a paint strainer that requires cleaning, as cleaning solutions can contaminate and ruin material.

Figure 18: Paint strainer