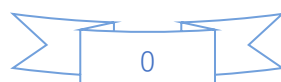




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The Engraving by F1 Looks Weaker at the Image's Edges

● What You See

The edge of the engraved image is unclear compared with the other areas.

In some cases, you may also find the sharpness uneven across the engraved image.





● Why it Happens

This is related to the nature of the field lens and the galvanometer.

- The transmittance around the field lens' edge is lower than that of the center.
- The reflectivity of the galvanometer differs at different angles when it deflects the laser.

As a result, less power is transferred to the material's surface, leading to a less clear engraving.

Note: Different material has its own sensitivity to the laser. For material with higher sensitivity, it's easier to get engraved, and less affected by the said phenomenon, and vice versa. For example, paper and wood are more sensitive than aluminum and copper.

● What to Do

Adjust the processing parameters so that more power can be transferred to the material.

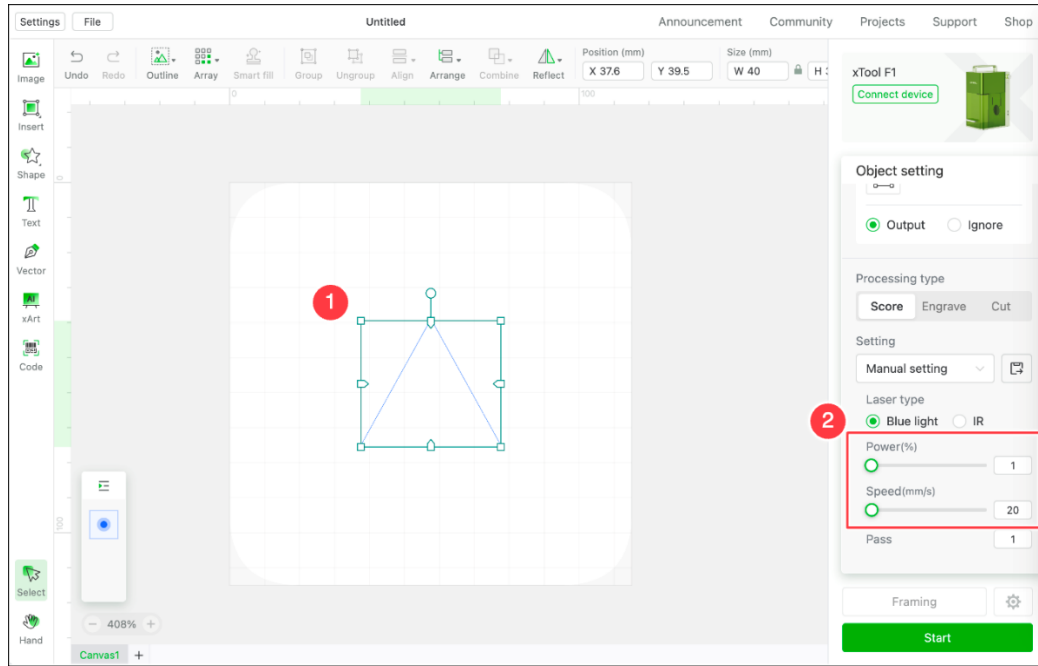
Follow the steps below to determine the most suitable parameters for your material.

For vector image

When you select the image, the right panel pops up.

You will find the following parameters to adjust:

- Increase the power.
- Lower the speed.

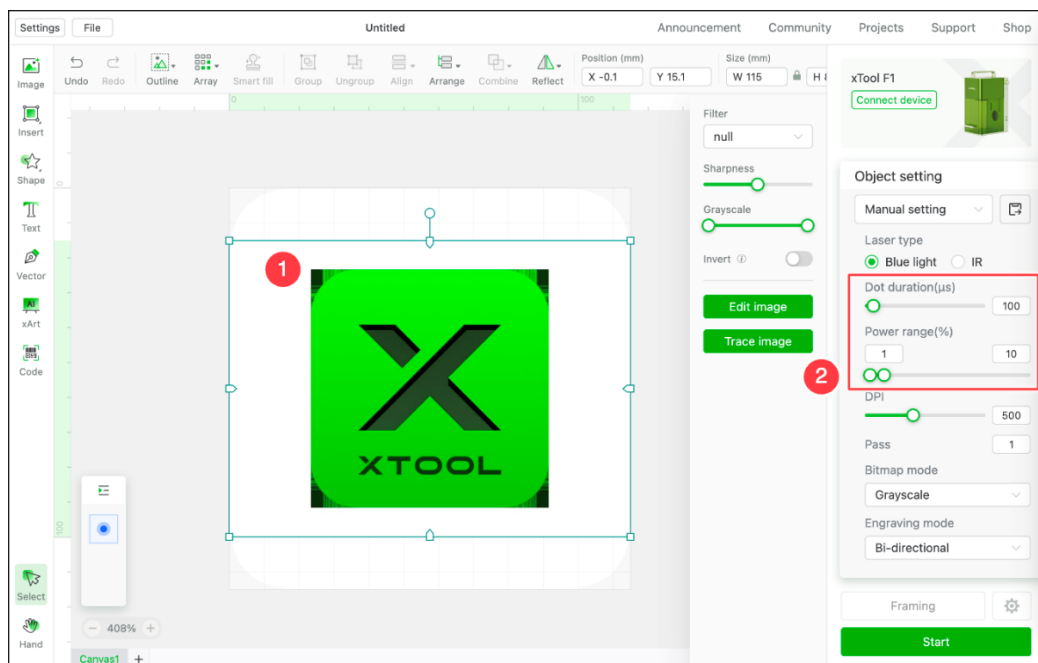


For bitmap image

When you select the image, the right panel pops up.

You will find the following parameters to adjust:

- Increase the power range.
- Increase the dot duration.

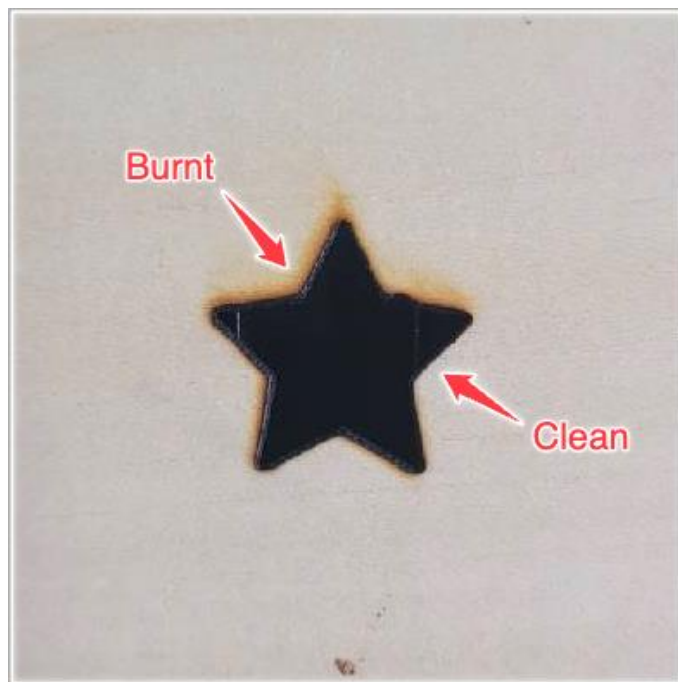




xTool F1 Leaves Burn Marks on Material Reverse

● What You See

Burn marks or fume residue on the back side of the cut material.



● Why It Happens

This is usually due to a wrong placement or lack of the slat plate during the processing.

- The slat plate raises the material and creates space beneath to prevent heat from building up.
- The direction of the slats should be in line with the airflow so heat and fumes can be vented.

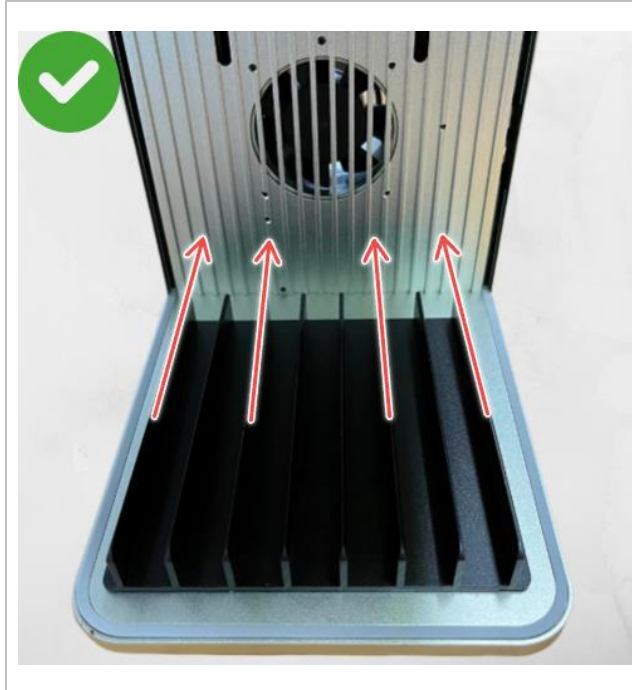
If the slat plate is missing, or placed in the wrong direction, burn marks can occur.



● How to Fix It

Make sure you use the slat plate for laser cutting.

1. Place it within the baseplate of the machine.
2. Have the slats point to the smoke outlet.





The Cut by xTool F1 Looks Angled at the Image's Edges

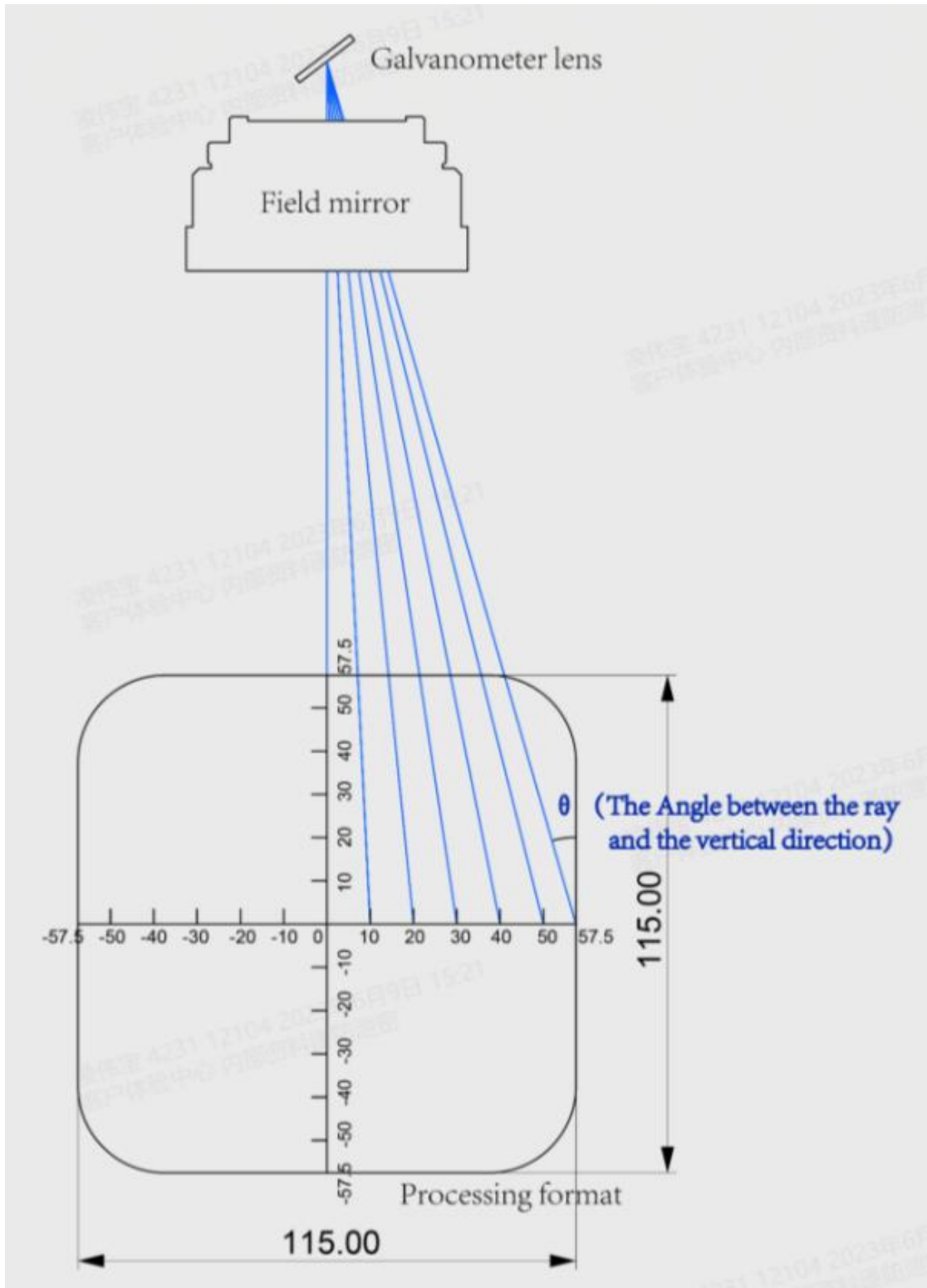
● What You See

You may find the cut surface of the material not perpendicular but angled. This makes the bottom side of the material get a slightly larger area than that of the top side. If you wonder why this happens, please read the guide below to learn more.

● Why It Happens

F1 is a galvanometer engraver. For this kind of engraver, the closer the laser beam is to the edge of the workpiece, the greater the angle will be of the cut surface.

This is because the point of emission of the laser beam is fixed, and a galvanometer is used to deflect the beam to the working surface. As the beam gets closer to the edge, the angle of deflection increases, resulting in a greater bevel angle. **This phenomenon is known as the galvanometer engraver's bevel angle effect.**





● How to Fix It

If you are looking for a way to reduce that angle, here are some ways you can try:

- Laser cut with a smaller design pattern.
- Put the workpiece right under the laser outlet.
- Use the slide extension for long or large area material.

Note: These can help but may not eliminate the bevel effect 100%.



The Engraving by F1 Looks Imperfect at the Top

● What You See

The upper area of the engraved pattern seems to be lighter, darker, or not showing.

This usually happens if you use the IR laser on a bitmap image in a cold environment.

● Why It Happens

IR laser needs to heat up to reach the level of power needed before emission.

It's like preheating an oven, cold temperature prolongs that warm-up process.

Cold temperatures could also cause the laser intermittence to be unstable.

● How to Fix It

Preheating the IR laser can effectively improve the outcome.

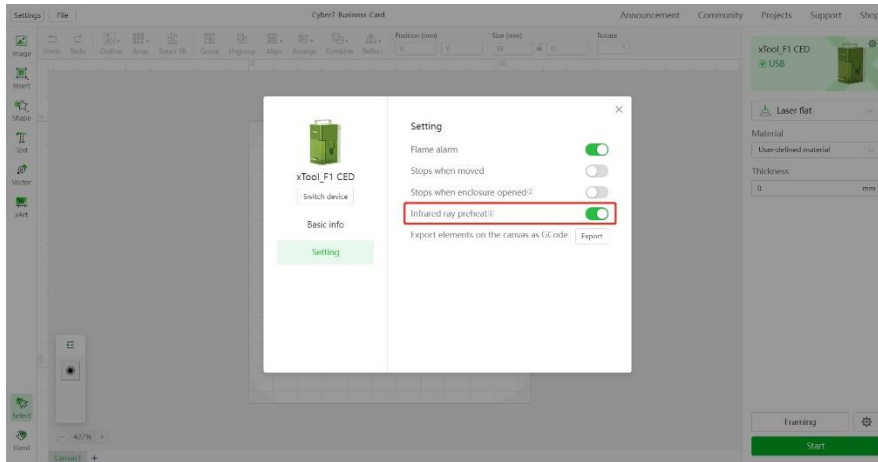
There are two ways: use the XCS built-in feature or do it manually.

Method 1: Enable Auto-Preheat

This allows F1 to preheat automatically each time before a job if needed.



When the device is connected to XCS, you can find the toggle in the device setting.

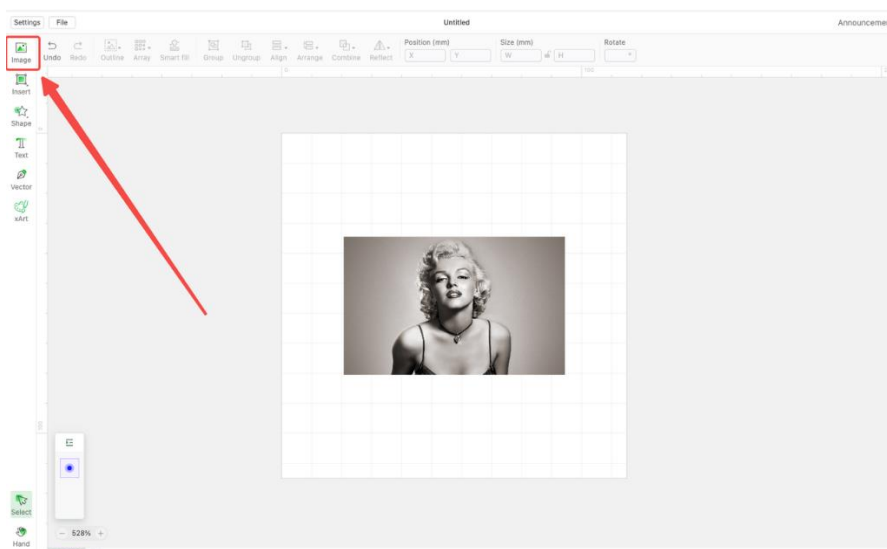


Method 2: Run a Job to Preheat

If you don't like F1 to do it automatically, feel free to do it on your own.

Simply run a bitmap job longer than one minute and then start the actual job.

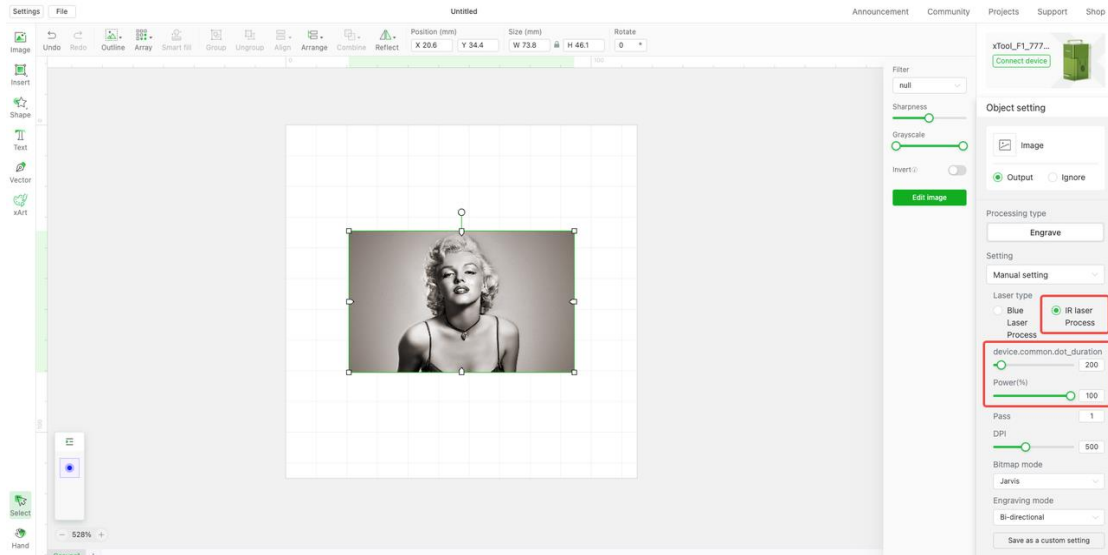
1. Connect your device to your computer and launch XCS.
2. Import a bitmap image and scale it to be about half the size of the canvas.





3. At the right panel, set the processing params as below:

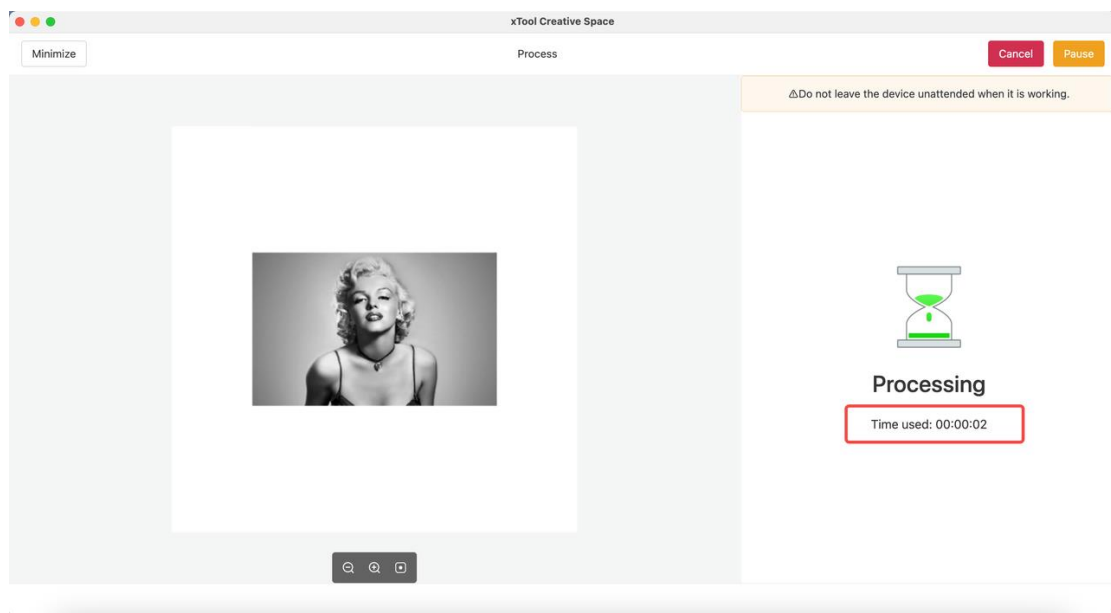
- Bitmap Mode: **Jarvis**
- Dot duration: **200µs**
- Power: **100%**
- Leave the rest as is.



4. Put the material on the baseplate.

5. Click on the process button on the Home screen and then the Preview screen.

6. Wait for one minute and cancel the process.





The Cut by F1 Won't Go Through Wood Effectively

● What You See

You may see the laser leaves a trail on the wood but doesn't go all the way down.

Or, some segments of the cuttings are perfect while the rest are not.

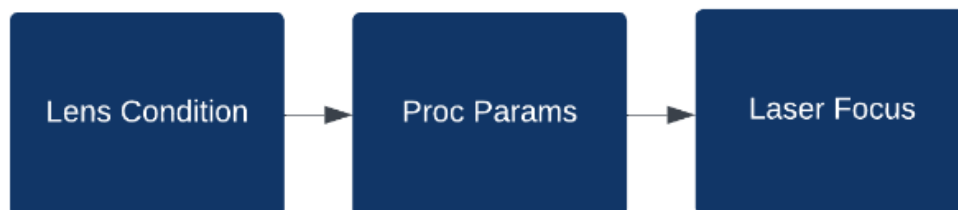
● Why It Happens

Usually, it's caused by a bad focus of the laser or insufficient cutting power.

There are contributing factors including wrong parameters, field lens condition, etc.

● How to Fix It

Pay attention to the following things before you run a cutting job.





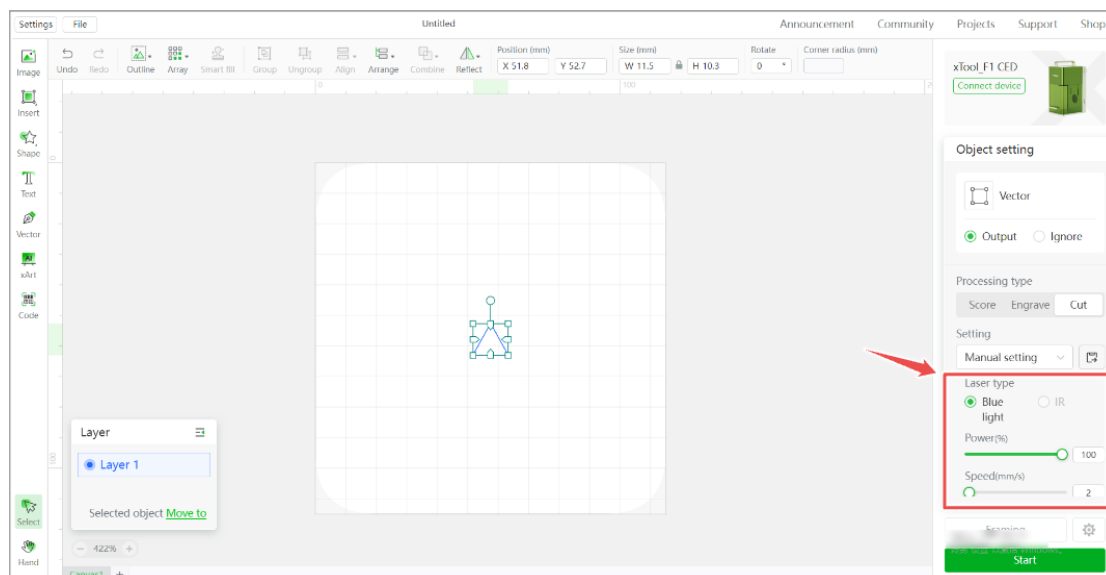
#1 Clean the Field Lens

After using the machine for some while, dust or smoke may accumulate on the lens.

Check on the field lens once in a while to make sure it's clean and free of damage.

#2 Adjust the Proc Params

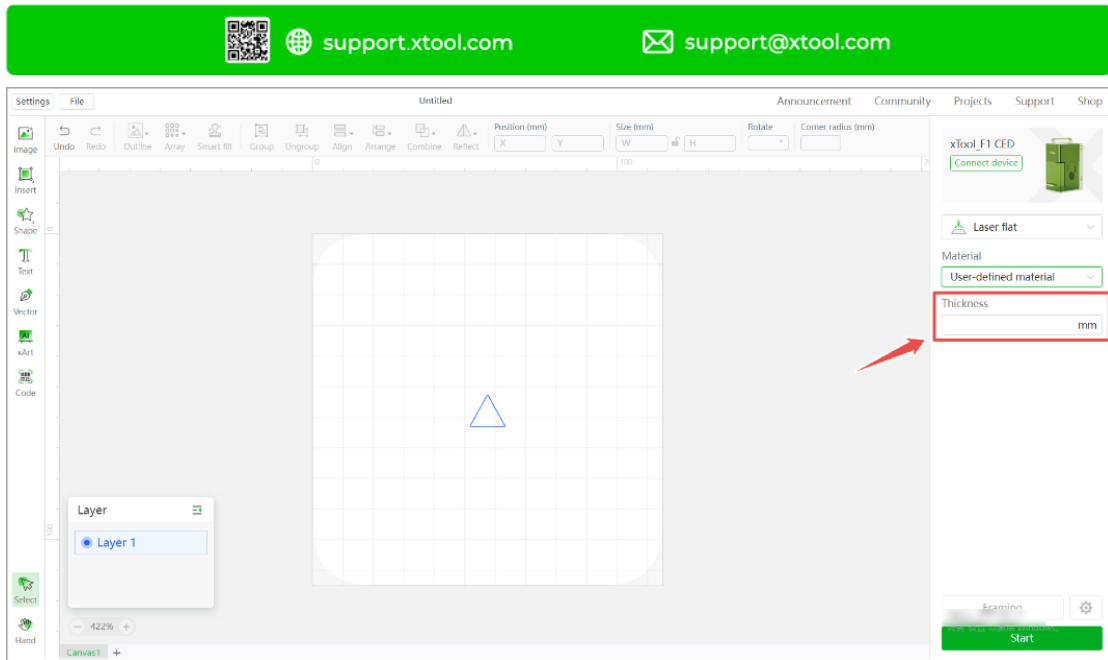
- Choose blue light as the laser type.
- Make sure the power is high enough.
- Make sure the speed is not too fast.



#3 Adjust the Laser Focus

F1 will focus its laser on the surface of the material according to the thickness value. You may want to lower that focus by decreasing the value of thick materials.

The ideal focus point should be at the half-point of the material thickness. For example, if the wood is 6mm thick, the thickness value should be 3mm.



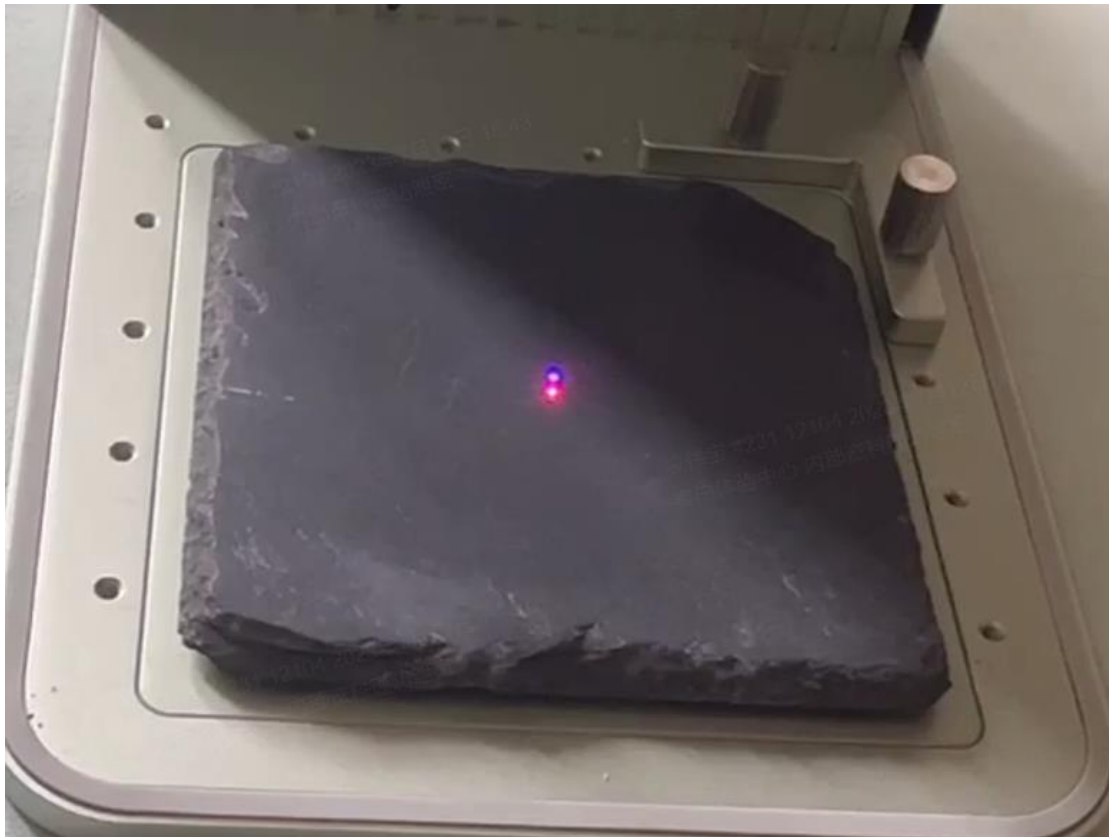
Note: The thickness input box will show after the "init"(initialization) process.



The Blue and Red Dots of F1 Aren't Overlapped

● What You See

When you use F1, the blue and red laser should fall on the same spot. The overlapping of the two lasers creates a purple-like dot. However, sometimes you may find them separated. This guide will tell you how to align these dots.



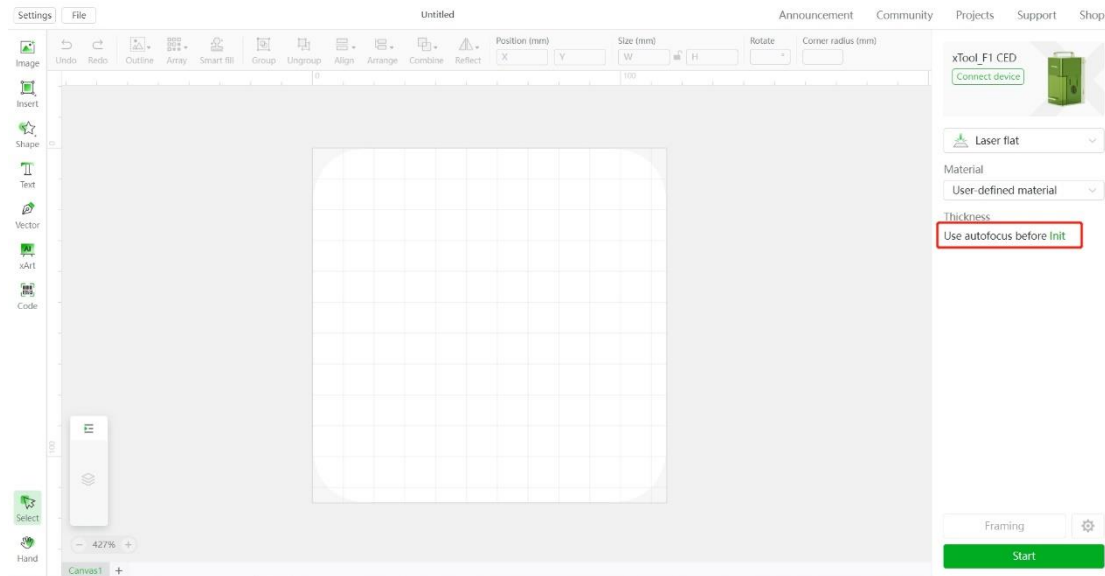
● How to Fix It

We can adjust the ball head at the bottom of the laser module. To do so, we'll need to go through two steps: auto-focus initialization and ball head adjustment.



#1 Initialize Auto-Focus

1. Connect F1 to a computer and launch XCS.
2. On the right panel, find "Use autofocus before init".
3. Click on the word "Init" in green. Wait for the device to complete the initialization.



#2 Adjust the Ball Head

1. Next to the laser outlet, you'll see a ball head and two screws near it.
2. Loosen the screws a bit to make the ball head movable.
3. Get a screwdriver and stick it into the bigger hole on the head.
4. Adjust the ball head until the two laser dots overlap.





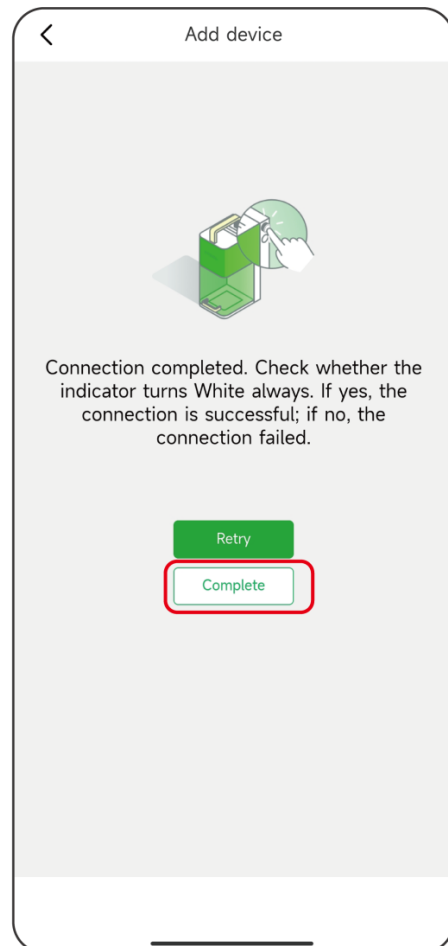
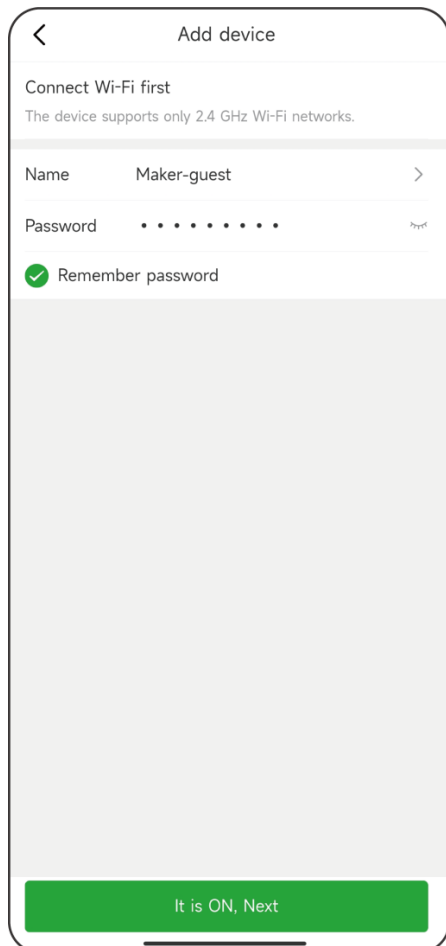
XCS Mobile Won't Connect to F1

● What You See

If you find connecting F1 to the Wi-Fi network by using XCS on your mobile phone fails but the Internet is working properly, please refer to the below to troubleshoot.

● How to Fix It

1. Select a **Wi-Fi** network and enter the **password**. Then, click **Next** to connect xTool F1 to the Wi-Fi.





2. Then the notification window pop-up, as shown below. Click "Go to WLAN settings".

2:48



Add device



1. Connect your mobile phone to the hotspot **xTool_F1_XXXXXX**.
2. Go back to XCS.

Go to WLAN settings

It is ON, Next



3. Manually connect your mobile phone to the hotspot xTool_F1_xxxxxx.





The Knob of F1 Won't Work Properly

● What You See

Sometimes the knob of the F1 device becomes unresponsive or fails to reset properly when pressed down. You may follow the instructions below to troubleshoot.

● How to Fix It

- Remove the knob and loosen the rod. See [this video](#) for details.
- If the knob cannot be removed, please pry it out carefully as is shown in the following way.
- If the knob happens to break, kindly contact the customer support team for a replacement.

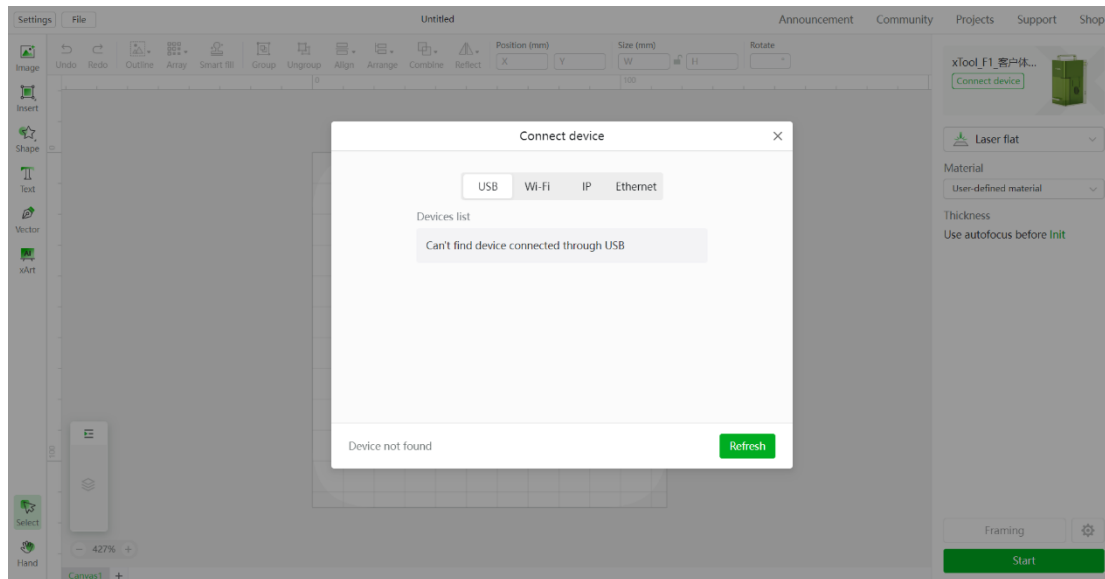




XCS Can't Find F1 Through USB

● What You See

After connecting xTool F1 to a computer via USB, the machine's name can't be found in the device list.



● How to Fix It

#1 Check the Driver

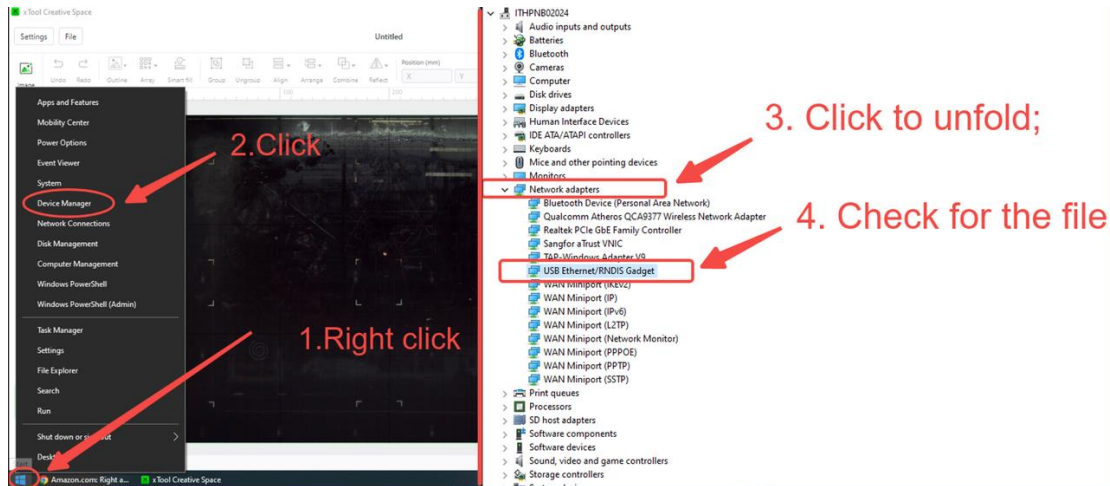
The driver program required by the connection may be missing or not installed properly.

For Windows:

Connect the machine to the computer through the USB cable that comes with the product.

Check if the driver program exists in the following way.

- a. Right-click the start button on your computer.
- b. Click Device Manager
- c. Click Network adapters and check if the USB Ethernet/RNDIS Gadget exists.



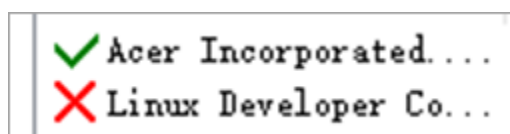
If the driver program is missing, follow the steps below to install the driver program and try again.

Download and unzip the driver ([DPInsts.rar](#)), choose the corresponding application, and double-click it to install.

This PC > Local Disk (D:) > Downloads > DPInsts

Name	Date modified	Type	Size
RNDIS.cat	8/20/2021 5:42 PM	Security Catalog	7 KB
RNDIS.inf	8/20/2021 5:42 PM	Setup Information	4 KB
rndis11.cat	8/20/2021 5:42 PM	Security Catalog	7 KB
rndis11.inf	8/20/2021 5:42 PM	Setup Information	3 KB
usb-driver-installer-x64.exe	8/20/2021 5:42 PM	Application	1,024 KB
usb-driver-installer-x86.exe	8/20/2021 5:42 PM	Application	901 KB

A window will pop up as below when the installation is completed. Restart the computer and try again.

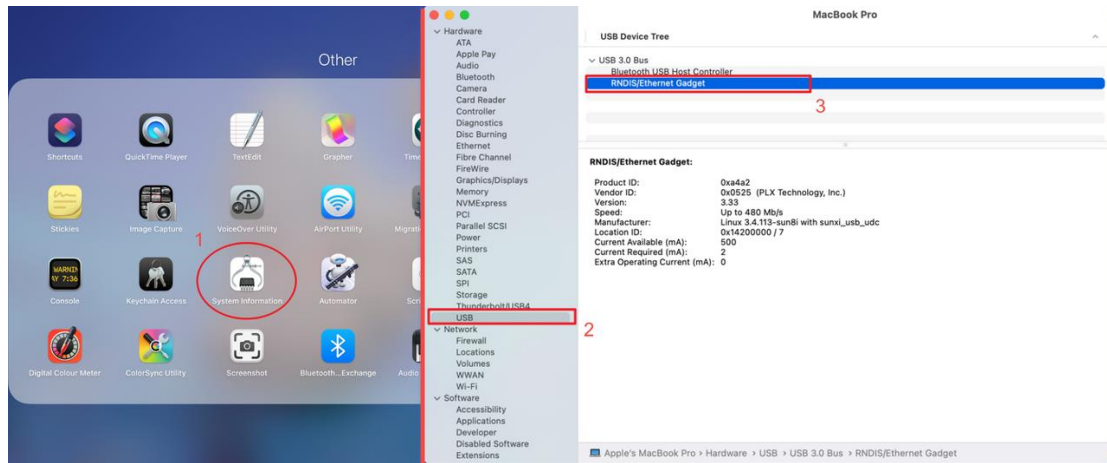


For Mac OS:

Connect the machine to the computer through the USB cable that comes with the product.

Check if the driver program exists in the following way.

- a. Click System Information
- b. Go to Hardware and click USB
- c. Check if the RNDIS/Ethernet Gadget exists.



If the driver is missing, follow the steps to install the driver and try again. The driver program for macOS: [HoRNDIS-9.2 catalina.rar](#)

#2 Check the USB Cable and Ports

Poor contact on the computer's USB port or the USB cable may cause the device to be unrecognized when plugged into the computer. Make sure the connection cable is inserted into the correct port, as shown below.





Plug the USB flash drive or other USB storage device into the port.

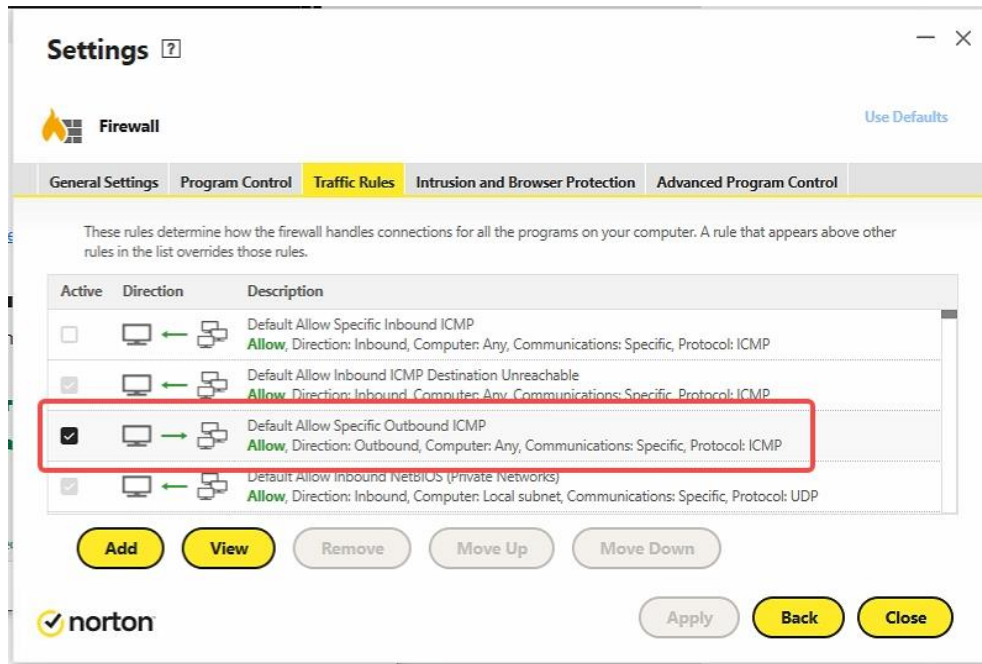
- If the device can be found on the computer, the USB port works properly.
- If not, please use other USB ports.

Reconnect the machine to the computer. If the device still can't be found in XCS software, please use another USB cable or port.

#3 Check Antivirus and Firewall

Please turn off your computer's antivirus and firewall features, then restart XCS and reconnect the USB.

If you have installed Norton antivirus software, please select the box shown in the photo below.



#4 Check Computer Requirements

PC	Minimum	Recommended
Processor	Intel Core i5-6200U	Intel Core i5-11600 or above
Operating System	Win10 (64-bit)	
	Mac 10.14	Mac 10.15 or above
RAM	8GB	16GB or above
Display Resolution	1280*720	1920*1080 or higher
Hard Disk Storage	8GB	12GB or above



XCS Can't Find F1 Through Wi-Fi

● What You See

After connecting xTool F1 and the computer under the same Wi-Fi network, the machine's name can't be found in the device list.

● How to Fix It

#1 Check the VPN Software

Stop any running VPN and try again.

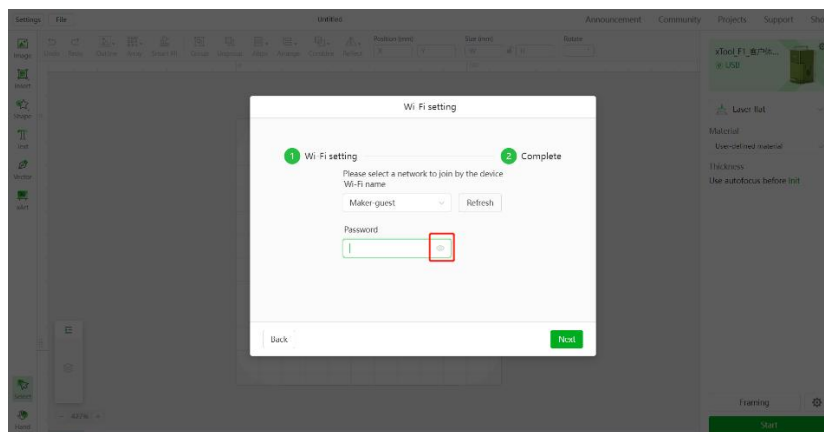
#2 Check Wi-Fi Signal

Try another Wi-Fi environment where the signals are strong enough.

#3 Check Wi-Fi Name and PWD

Make sure the Wi-Fi name and passwords consist of only pure letters and numbers.

In order to avoid mistyping, please make the password visible when typing.





#4 Check Wi-Fi Frequency Band

Make sure your Wi-Fi is in the 2.4 GHz band, not the 5 GHz band, and try again.

#5 Check Wi-Fi Connection

Connect the machine to the computer via USB. Choose the correct Wi-Fi and connect the machine to the computer through Wi-Fi.



xTool F1 Won't Power On or Gets Nonresponsive

● What You See

Sometimes you may find the device won't power on even if the power cable is plugged in and the power switch is pressed. This could also happen to a brand-new machine if you just get the product. If you encounter the above issue, please refer to the steps below to troubleshoot.

● How to Fix It

1. Check if the emergency stop switch on the right side is triggered.
2. Reset the switch by turning it clockwise.
3. Powered off the device before re-plugging the power cable.
4. Turn on the device and try again.





xTool F1 Stops Mid-Job for “Device Moved”

● What You See

When you do a laser-burning project with xTool F1, you may find it stops working in the middle of the job for no particular reason. You may also see a pop-up error message in XCS that says: "Device moved".

● Why It Happens

This could be due to the "Stop When Moved" feature, the built-in safety mechanism of xTool F1.

It uses gyroscopes and accelerometers to detect unusual movements like wobbling, tipping, etc.

When triggered, it will cease any ongoing laser activity to prevent possible harm to humans or property.

● How to Fix It

#1 Place the Device on a Flat Surface

When the function is enabled, F1 should be placed on a secured and flat surface.

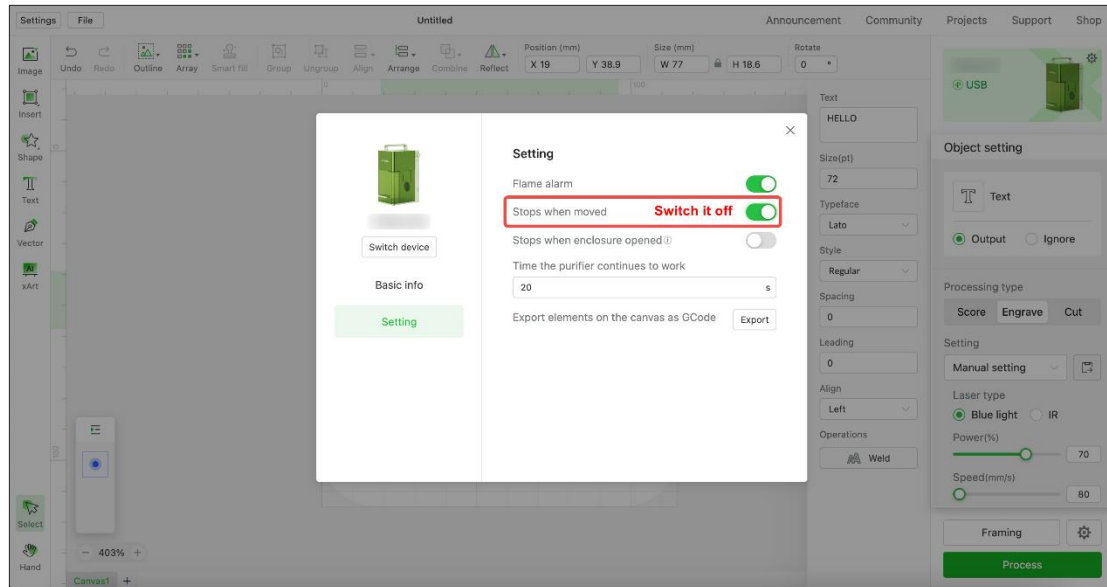
This will help reduce unwanted movements as much as possible.

Please also have someone around the engraver when it's working.



#2 Disable "Stops when moved" in XCS

If you've checked that your workspace is secured, free of obstructions, and no dangerous materials around, you may choose to disable this feature as shown below. Make sure there is no risk of accidents and have someone around to keep it safe.

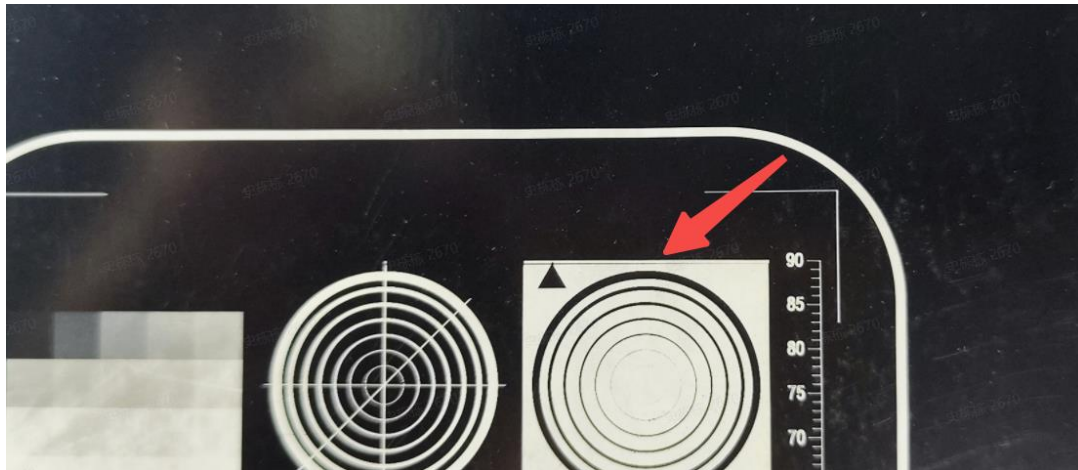




The Material Moves During Processing

● What You See

When processing a light material, if it moves, it is likely that the increased speed of the exhaust fan distorts the processed material. This issue may be more obvious when a smoke purifier is used. Refer to the following step to troubleshoot.



● How to Fix It

Hold the material with heavy things or fix it to the plate.



xTool F1 Won't Fire the Laser

● What You See

When you try to process something, you may find there is no visible laser beam coming out from the device.

● Why It Happens

It is likely because the emergency switch or the USB lock is triggered, or the laser path is blocked.

- If the emergency stop is triggered, it will prevent the machine from working.
- If the access control key is not inserted properly, the machine won't work.
- If the protector is covered on the lens, it will block the laser from coming out.



● How to Fix It

#1 Check the Emergency Switch

1. Make sure the emergency stop switch is not pressed down.
2. You can reset the switch by turning it clockwise until it bounces up.





#2 Check the Access Control Key

1. Check if the access control key is inserted properly.
2. Check if the access control key or the USB key port is damaged.





#3 Check the Field Lens Protector

Make sure the field lens protector is removed prior to lasering.





Contact Us

We hope this guide is helpful. And we'd love to hear what you think.

If you have any questions, please contact us at: support@xtool.com