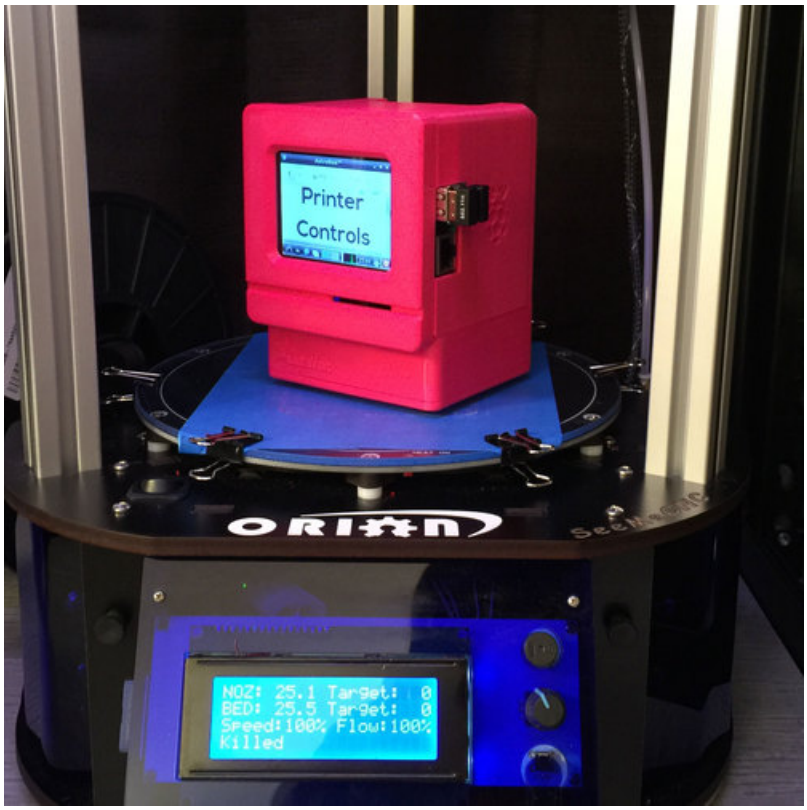
adafruit learning system

AstroPrint 3D Printing

Created by Ruiz Brothers



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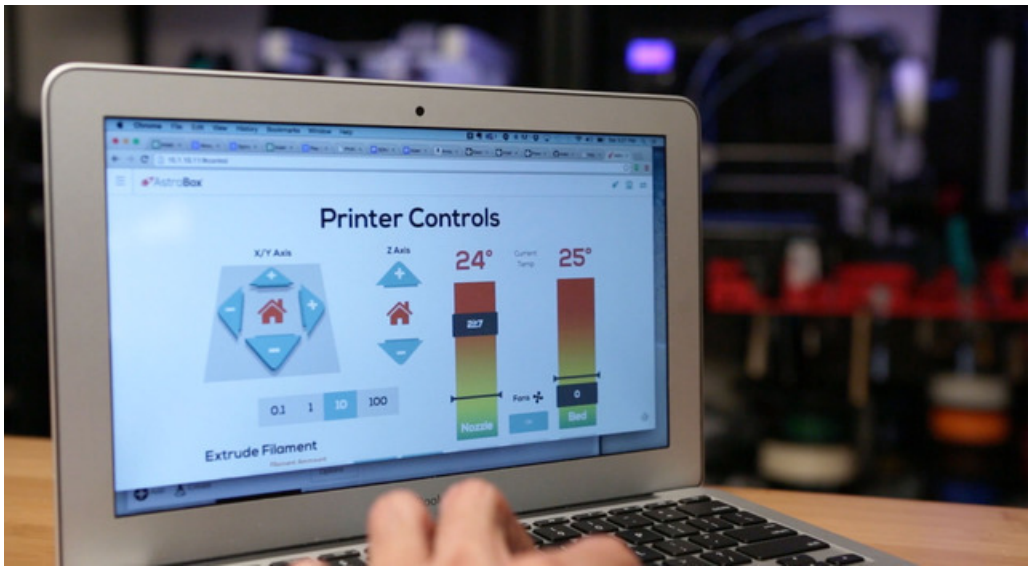
Overview

WiFi 3D Printing

In this guide we're going to setup the Raspberry Pi with Astro Print. AstroPrint is free, open source software for wirelessly managing 3D printers. It features a mobile friendly user interface that works across multiple devices and screen resolutions.

This makes 3D printing easier to manage, eliminating the need for SD cards or manually controlling via USB. Astroprint also works in the cloud, so you can manage prints anywhere through a web browser!

The AstroPrint software is derived from the OctoPrint project and available for the Raspberry Pi and other Linux boards.



Monitor 3D Printers

Use the Raspberry camera module or a USB web cam to monitor your 3D printer. Use the built-in timelapse feature to capture prints. Get printing status, time elapsed and time remaining. Cancel or pause prints at any time. Set extruder temperaturess and Home-Z to control and prime your printer. Upload gcode locally or slice STL files using Astroprint in the cloud.

Easy Installation

Setting up your 3D printer with Astroprint is straightforward and only needs a few components to get going.

- Download AstroPi image for Raspberry Pi
- Burn image to an SD card
- Connect USB Wifi Adapter to Pi
- Connect 3D printer via USB to Raspberry Pi
- Configure WiFi network settings in AstroPrint
- Wirelessly 3D Print!

Parts and Things

- Raspberry Pi (https://adafru.it/ejq) (A+, B+, B)
- USB WiFi adapter (http://adafru.it/814)
- microSD card (http://adafru.it/102)
- microUSB cable (http://adafru.it/592)
- HDMI monitor / PiTFT (https://adafru.it/ejr)
- USB keyboard+mouse (https://adafru.it/ejs)
- 3D printer (https://adafru.it/doT)

Software

AstroPi Image

Download the Astroprint image by clicking the button below.

https://adafru.it/ejt

https://adafru.it/ejt

Burn SD Card

Use a format utility app to burn the Astroprint image onto a microSD card. There are a few options to consider, check out the guide on the RPi easy SD card setup.

https://adafru.it/aMW

https://adafru.it/aMW

Prep Raspberry Pi

With the SD card burnt with the Astroprint image, instert the card into the Pi. You need to connect a USB WiFi adapter to the Pi. You don't need to plug a keyboard+mouse and HDMI display to configure the Pi. The autoscript will create a wifi hotspot where you can connect to with your computer and then configure settings from a web browser.

Raspberry Pi 2 Image

1. Start the box and look for a wifi network called AstroBox-xxxx. (xxxx is 4 random numbers)

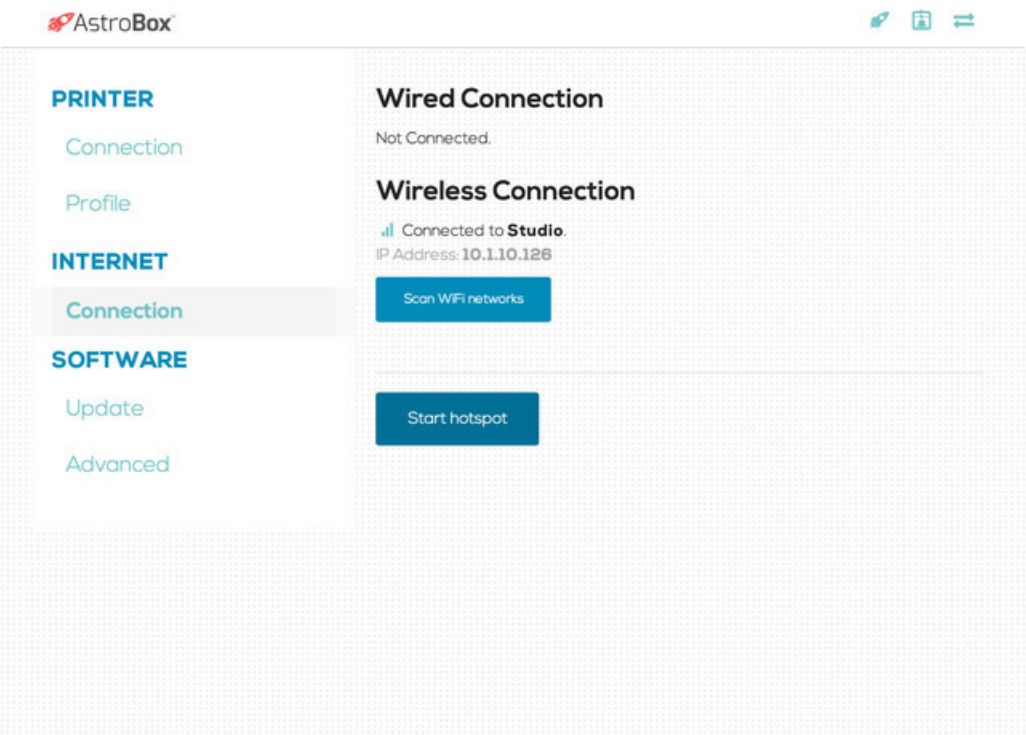
2. Remember this name if you don't plan to change it. This is how you access your box after setup http://AstroBox-xxxx.local (https://adafru.it/exu)

3. Get on that wifi.

4. Go to http://10.10.0.1 (https://adafru.it/exv)

5. Perform setup and connect the box to your wifi.

6. After setup you can access your box using http://AstroBox-xxxx.local (https://adafru.it/exu) or http://[name].local (https://adafru.it/exu)if you changed the name. Your computer/tablet need to be on the same network as the box.

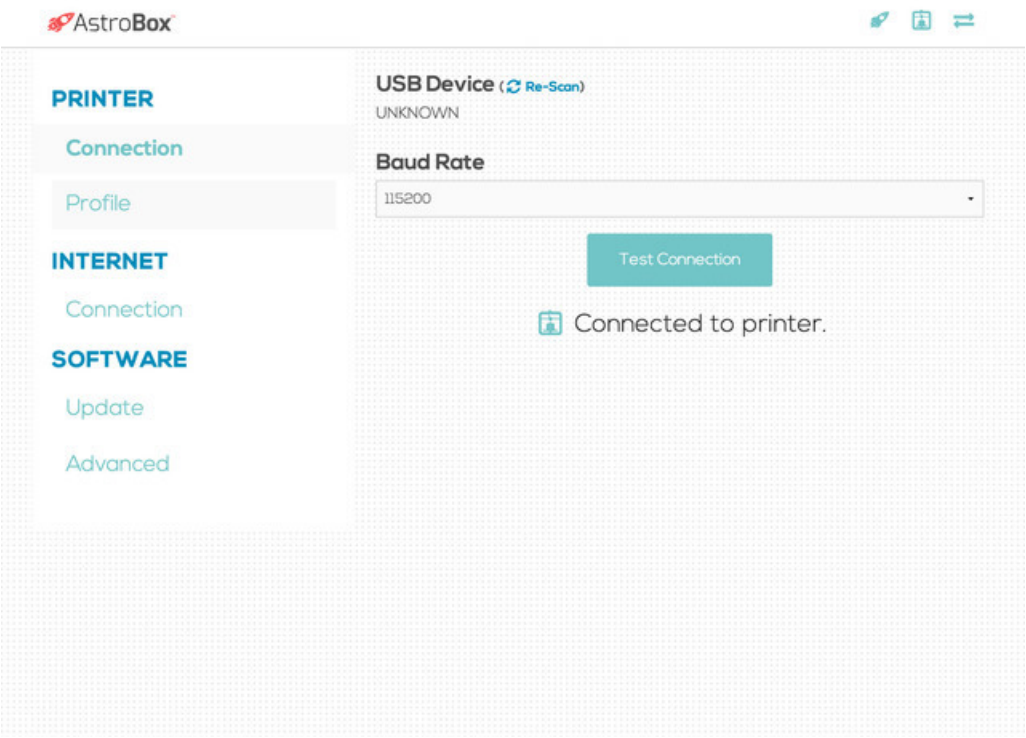


Disable Astrobox Hotspot

Once the Astrobox is connected to your WiFi network, you may want to turn off the local hotspot - for security reasons!

Its under Settings > Internet > Connection > Turn OFF hotspot.

It's a public hotspot by default - Probably wouldn't want your neighbors controlling your 3D.



Further Configurating

If your WiFi network doesn't apper in the list, you'll need to configure your setup so it broadcoasts public SSID - Hidden SSID isn't support (yet).

If your 3D printer isn't connecting to Astrobox, check your printers preferred buad rate. Use the "**test connection**" button and "**re-scan**" icon to update changes.

For any other questions, suggestions or feature requests. Check out the Astroprint forum.

https://adafru.it/eju

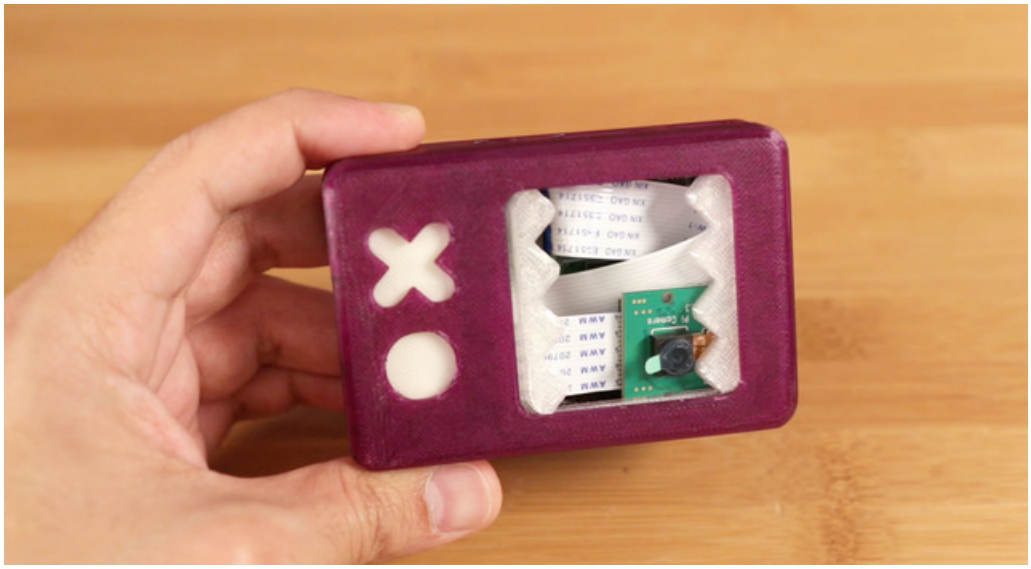
https://adafru.it/eju

Webcam Setup

Plug n Play

Connect a USB hub to the Raspberry Pi and then connect the USB WiFi adapter and 3D printer to the hub.

Astrobox supports most USB web cameras, like the logitech C920. There's currently **NO support** for the Raspberry Pi camera module.

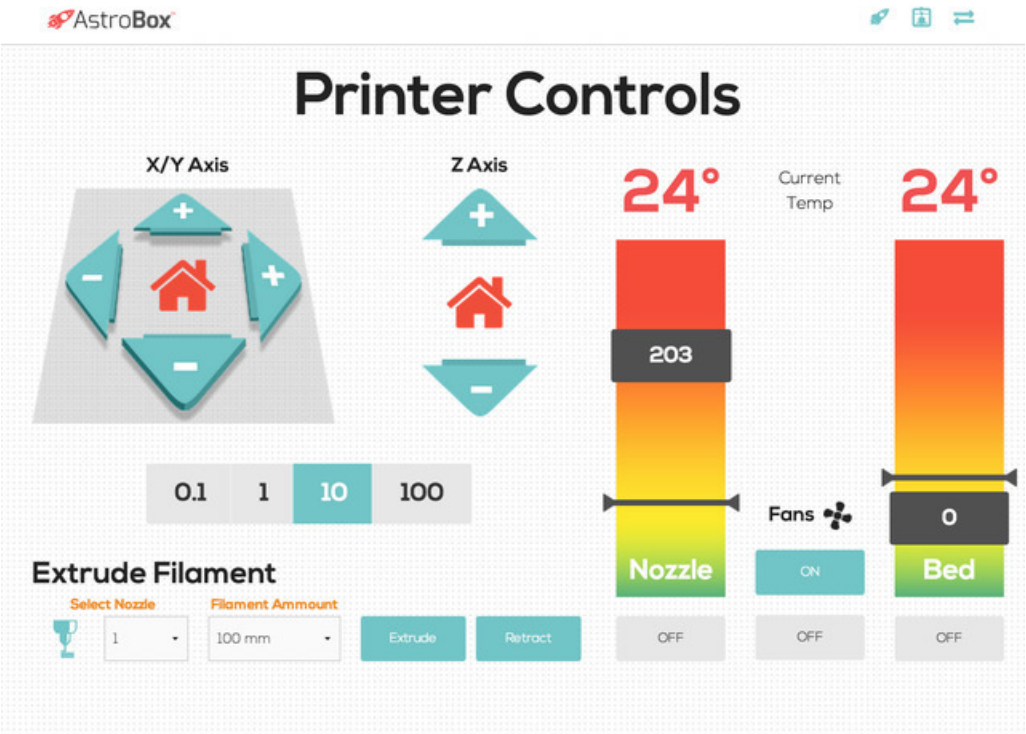


Web Cam Feature

At the moment (version 0.4), you can only monitor the web cam during prints. Simply click on the camera icon in the UI to update the web cam photo. It's not a live preview, just a photo - this may improve in future versions!

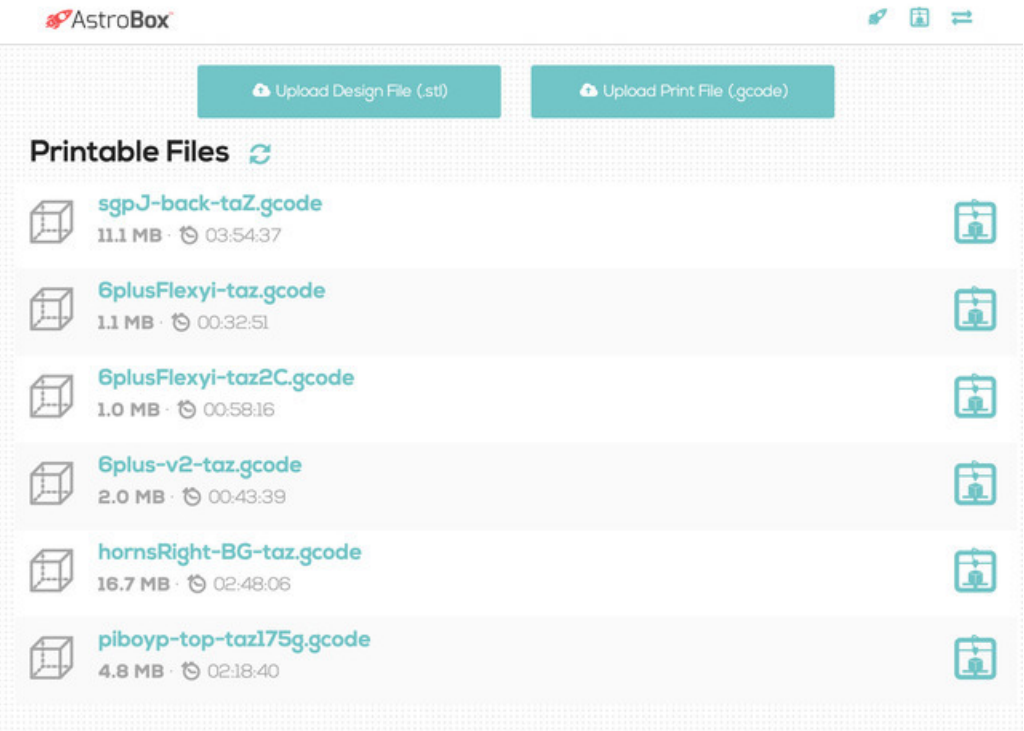
> Update: Astroprint supports the pi camera module. https://astroprint.zendesk.com/hc/en-us/articles/202327819-Can-I-use-my-RPi-Camera-with-Astroprint-

Features



Printer Controls

You have access to most movements. You can jog the X, Y and Z axis in increments of 0.1, 10 and 100mm. The nozzle and bed temperature can be adjusted by dragging the handle in the slider guage. Extrude filament can be used for priming and switching filaments. There's also support for multiple extruders. Clicking the "**house**" icon will home the desired axis. The fan can be enabled by clicking the "**fan**" icon.

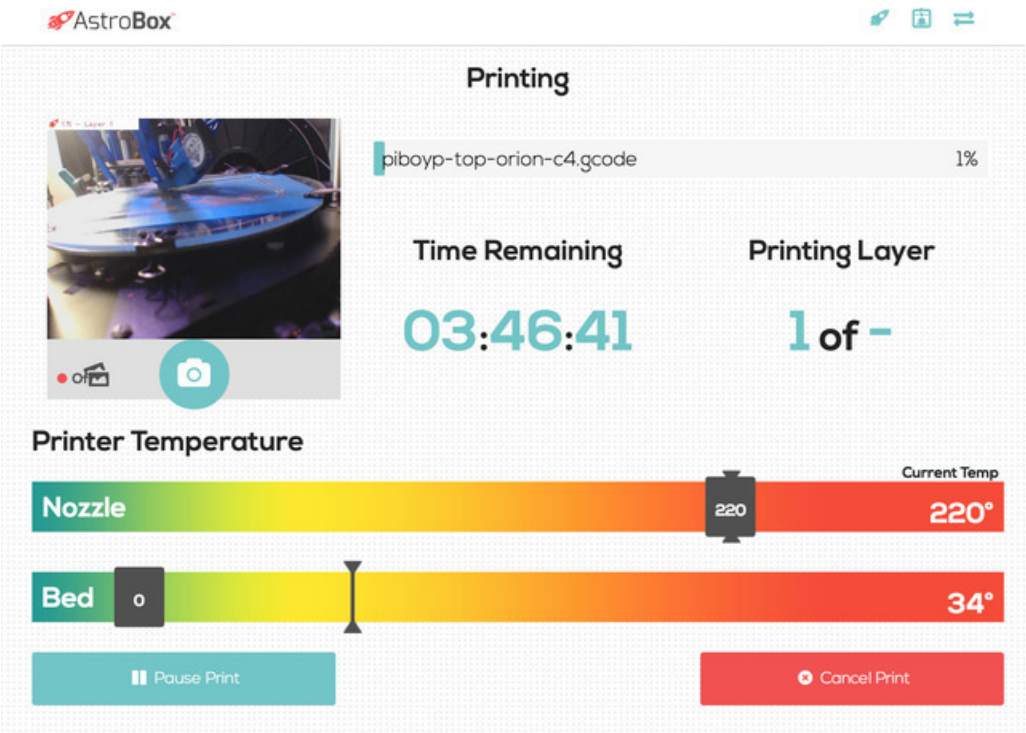


Printable Files

This is where all of your gcode files are stored and listed. You can upload gcode by clicking on the upload button. If you prefer to slice using Astrobox, you can upload an STL file and skip opening your slicer - You can choose between the Cura or Slic3r engine.

You can delete files by clicking on the cube icon next to the file name. It will bring up a modal window with a "**trash can**" icon for deleting.

To print a file, simply click on the "**3D printer**" icon next to the desired file name.



Printing

While printing, a progress status bar displays the file name and completion percentage.

Time remaining and printing layer will automatically update while the printing process takes place.

Printer temperature is a visual indicator to monitor the amount of heat produced by the bed and nozzle.

You can **pause** or **cancel** a print at any time by clicking on the desired button.

While the print is paused, you are able to control movements and temperatures, which is great for switching out filaments!