

Raspberry Pi INDI Network Bridge

The Raspberry Pi is used a lot within amateur astronomy to control all sorts of devices like cameras, mounts and focusers. This is commonly done with the StellerMate (paid) and Astroberry (free) operating systems. However a bottleneck with this method is the slow processor on the Raspberry Pi and for certain tasks the amount of RAM as well. That is why it might be a good option to only use the Pi as an interface for another computer on the network to access. This is where INDI comes in. It is basically ASCOM, but for MacOS and Linux. A nice feature of INDI is that it lets you run an INDI server for other devices on the network to access, allowing you to offload all the heavy tasks such as platesolving and guiding to a full computer or laptop.

Building an INDI network bridge

We'll need the following equipment to build the INDI server:

- Raspberry Pi 4 or 5 (3 is untested, but may work).
- empty 16 gb or larger MicroSD card (this will overwrite all data currently on the card)
- MicroSD card reader or a computer with a MicroSD card slot

And the following software:

- Raspberry Pi imager: <https://www.raspberrypi.com/software/>
- AstroBridge operating system: <https://github.com/GeneralSyb/astrobridge/releases>

To install the AstroBridge OS:

1. Put the SD card reader into the computer or put the MicroSD card into the reader on your computer.
2. Open the Raspberry Pi Imager.
3. Select your Pi model.
4. Select the AstroBridge .img or .zip file you downloaded from GitHub (scroll down the list of options and select "Use custom")
5. Select the correct storage device, be very sure to select the right SD card!
6. After clicking on "Next", the application will ask if you want to edit settings. If you plan on using WiFi, then you can edit the settings with the WiFi credentials of your network.
7. To burn the image to the card, press "yes" when asked to apply the OS customisation settings.

8. When done, take out the MicroSD card and put it in the Pi. The first boot might not start correctly, but let it do its thing for a few minutes. After that you can reboot the Pi by unplugging it and plugging it back in, after about a minute everything should be running and you can connect your devices.

Connecting to the bridge

Your client computer will have to be on the same LAN network as the Pi. To connect to it from Ekos you will need to find the IP address, which can usually be found in the client list in your router's web panel or using an app like PingTools (Local-Area Network tab).

In Ekos (or whichever program you want to use), select the "Remote" mode, check the INDI Web Manger checkbox and enter the IP address of the Pi. At this point you are good to go.

SSH is enabled by default and the login credentials are "pi" with password "raspberry".

Building from scratch

will come later

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