# ➢ eFinder install on 64bit Raspian OS ‘Bookworm’ for Pi4 & 5

Install Bookworm 64bit Raspian OS (use Raspberry Pi Imager app). Use a SD card at least 16GB, A fast 32GB card is recommended from either Samsung or Sandisk. The process is described in detail in the separate note ‘Creating an eFinder or ScopeDog SD card’

There are two ways to continue to build the sdCard. Both require you to insert the card into the Pi and boot, using a keyboard, mouse and HDMI display. At this point you may wish to set up the Pi Wifi

**The easy (best) way**

Open a terminal window, and execute the following three lines, one at a time

wget https://github.com/AstroKeith/eFinder64/raw/main/install.sh
sudo chmod a+x install.sh
./install.sh

The last should take about 20 minutes. Then thats it! If you want to know what its doing its basically a script that does the ‘Manual Way’ for you. See below.

**The ‘Manual way’**

If needed during installation of files, to enable a file manager with sudo privileges
sudo pcmanfm

Create a virtual environment
python -m venv /home/efinder/venv-efinder –system-site-packages (note the double hyphen)

Activate it
source venv-efinder/bin/activate
(just type ‘deactivate’ in the terminal to exit the virtual environment)

Install all the dependencies first whilst in the venv-efinder environment
sudo apt install python3-fitsio
pip install astropy
pip install pyfits

'sudo apt-get install' the following
libcairo2-dev
libnetpbm11-dev
netpbm
libpng-dev
libjpeg-dev
zlib1g-dev
libbz2-dev
swig
libcfitsio-dev

Reboot the Pi & activate venv-efinder

Download the latest astrometry.net from the GitHub
wget https://github.com/dstndstn/astrometry.net/releases/download/0.94/astrometry.net-

0.94.tar.gz

tar xvzf astrometry.net-0.94.tar.gz

Build astrometry.net

execute

cd astrometry.net-0.94

sudo make

sudo make py

sudo make extra

sudo make install

Get some astrometry index files, Can be found on the eFinder Google share

Add some index files to

/usr/local/astrometry/data

Suggest: index-4109.fits thru index-4113.fits

Add some catalog files to a new folder

Can be found on the eFinder Google share

Create /usr/local/astrometry/annotate_data (use sudo pcmanfm to get permissions)

Suggest:

abell-all.fits

brightstars.fits

hd.fits

hip.fits

Edit profile to include new PATH

sudo nano /etc/profile

add to end of file

export PATH=/usr/local/astrometry/bin:$PATH

save and close

Reboot and re-activate your venv

remove need for password during code execution

sudo visudo

then add following line to end

<username> ALL = NOPASSWD: /bin/date

save & exit

sudo apt install imagemagick

sudo apt install python3-skyfield

sudo apt install python3-pil.imagetk

Install ASI camera support

Make sure you have activated venv-efinder

Download ASI Camera SDK https://www.zwoastro.com/downloads/developers

Extract ASI_Linux_mac_SDK_V1.x.tar.bz2

Extract /lib

Copy folder armv8 and contents to /lib/zwoasi/

Copy asi.rules to ~/efinder
Execute
cd /home/efinder
sudo install asi.rules /lib/udev/rules.d
pip install zwoasi

Set up a folder in ramdisk.
sudo nano /etc/fstab
tmpfs /var/tmp tmpfs nodev,nosuid,size=100M 0 0
sudo mount -a

Create a folder /home/efinder/Solver and copy all the files from eFinder_bookworm_OS package (from Google share) into it

If required make it auto start on power up
execute crontab -e
add to end
PATH=<copy your default venv-efinder PATH into here>
@reboot sleep 10 && env DISPLAY=:0 venv-efinder/bin/python ~/Solver/eFinder.py &

Make sure the desired copy of eFinderXXX_YY.py is saved in /Solver and renamed eFinder.py
Plus the line starting os.system('pkill..... (about line 33) in eFinder.py is commented out.

If VNC required:
Exec sudo raspi-config, select advanced options, option A6, change from Wayland to X11
Then enable VNC from main menu/preferences/raspberry pi configuration/vnc

In Raspberry Pi configuration, enable Serial, disable serial console. Disable screen blanking.
Set headless display resolution to something that suits whatever device you will use to VNC view the Pi desktop.

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