



Player One Astronomy

Micro-Manager Device Adapter Manual

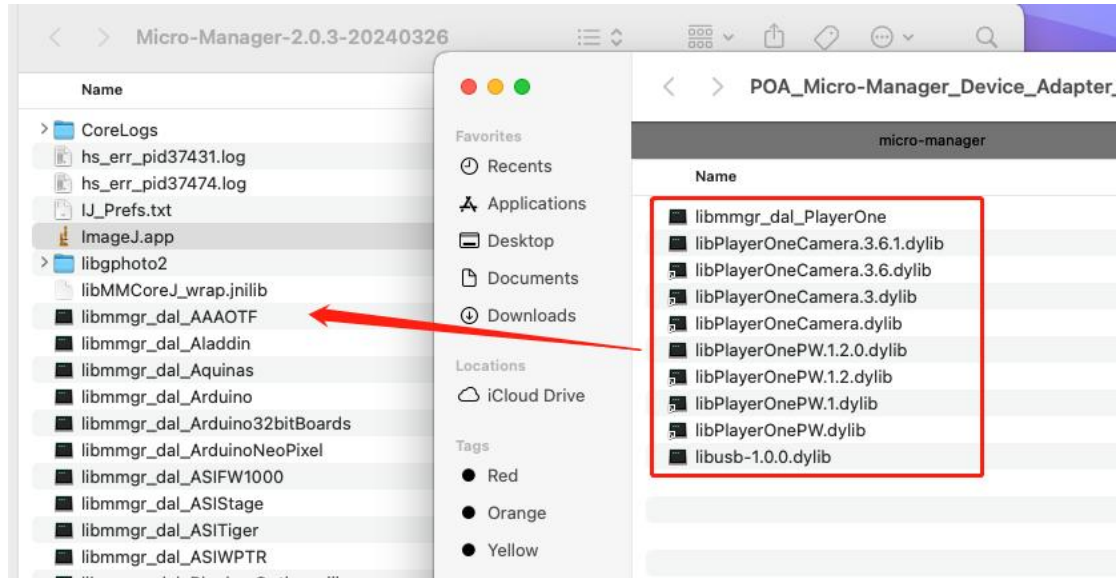
Revision 0.2

Jul 2024

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1. Install the Adapter

Please **copy** libmmgr_dal_PlayerOne and all .dylib files to the *Micro-Manager* folder, as shown in the figure(when upgrading, please delete the old files before copying):



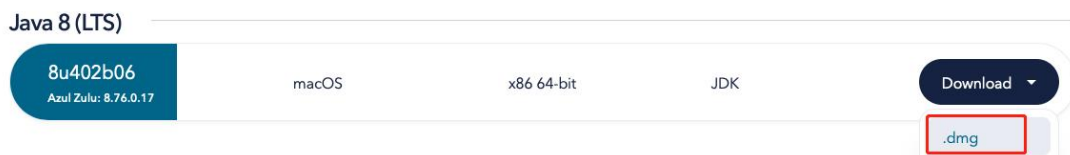
Note: Please install **Micro_Manager V2.0.3** or later versions.

Download URL: [Micro-Manager 2.0 Mac nightly downloads](#)

If you haven't run Micro-Manager on your Mac yet, the following information may be helpful:

-- Download the Zulu JDK8 (x86 64bit) and install it(dmg file), here is the URL:

<https://www.azul.com/downloads/zulu-community/?&os=macos&os-details=macOS&package=jdk>



Note: Even if your Mac has a M series CPU, please download the x86 64bit JDK.

-- After installing Mirco-Manager, do not run it yet. According to the official website documentation, you need to do this: within the Micro-Manager folder in Applications, hold command and drag ImageJ onto the desktop. Then hold command and drag it back in. Then try running again. In addition, you need to CTRL-click or right-click and select Open (instead of simply double-clicking) the first time you open it. Please see [Micro-Manager Installation Notes](#).

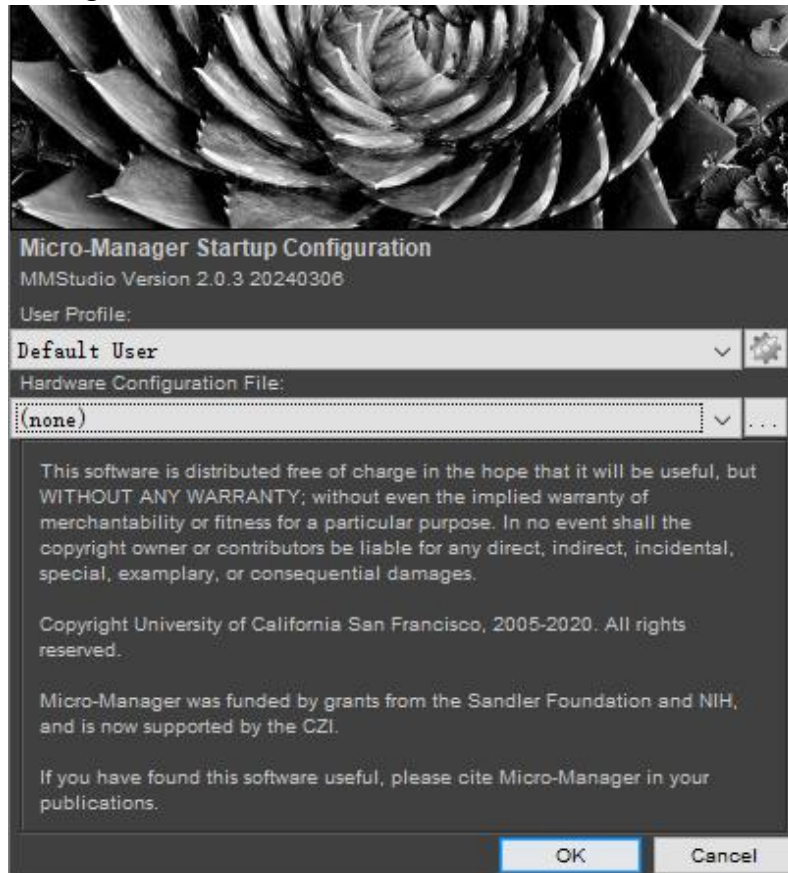
Run this command in terminal:

```
sudo xattr -r -d com.apple.quarantine /Applications/Micro-Manager-2.0.3-20240326
```

Note: Please change 'Micro-Manager-2.0.3-20240326' to the installation path of your Micro-Manager.

2. Hardware Configuration

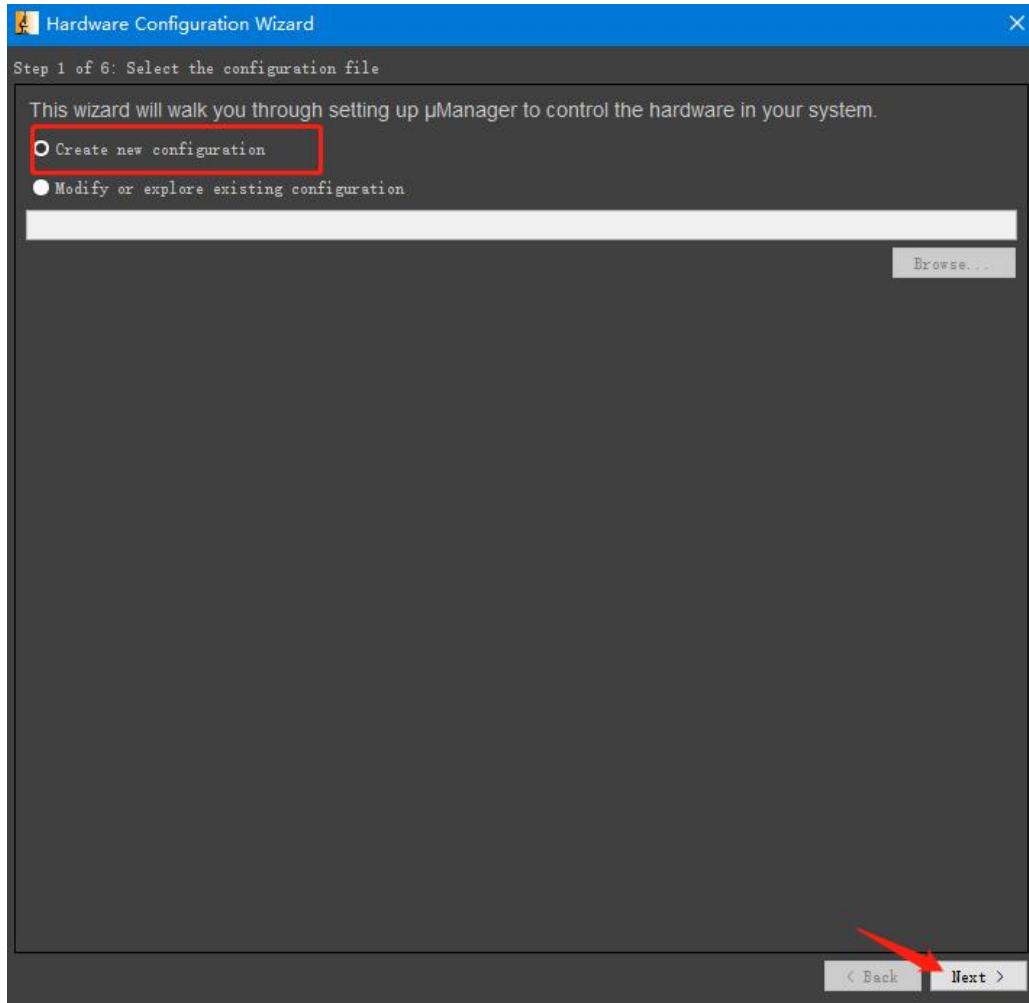
After Micro-Manager starts for the first time, select none:



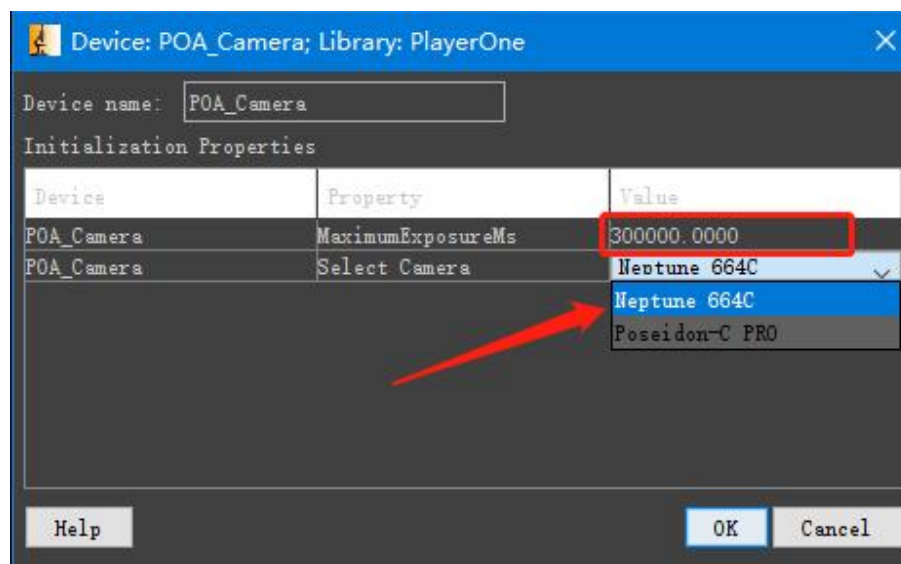
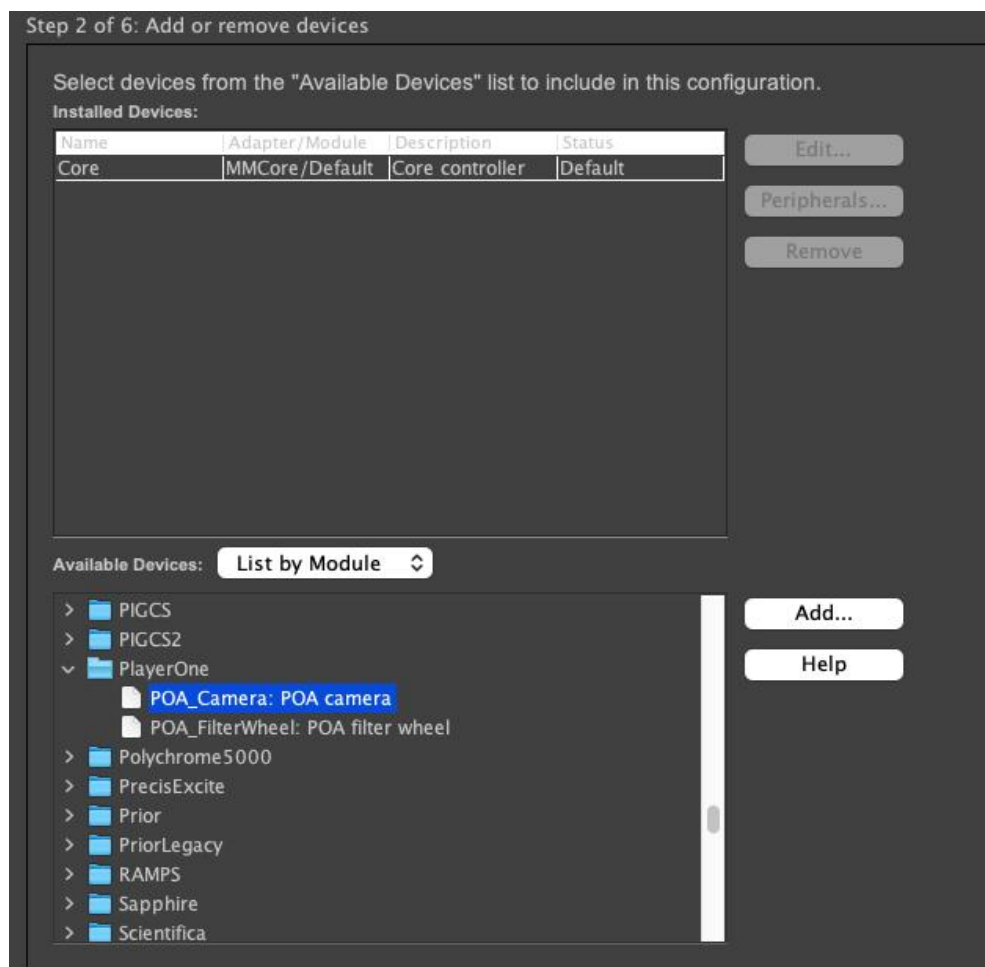
In the menu, click *Devices-> Hardware Configuration Wizard...*



Configure Player One's camera and filter wheel as shown in the image below:



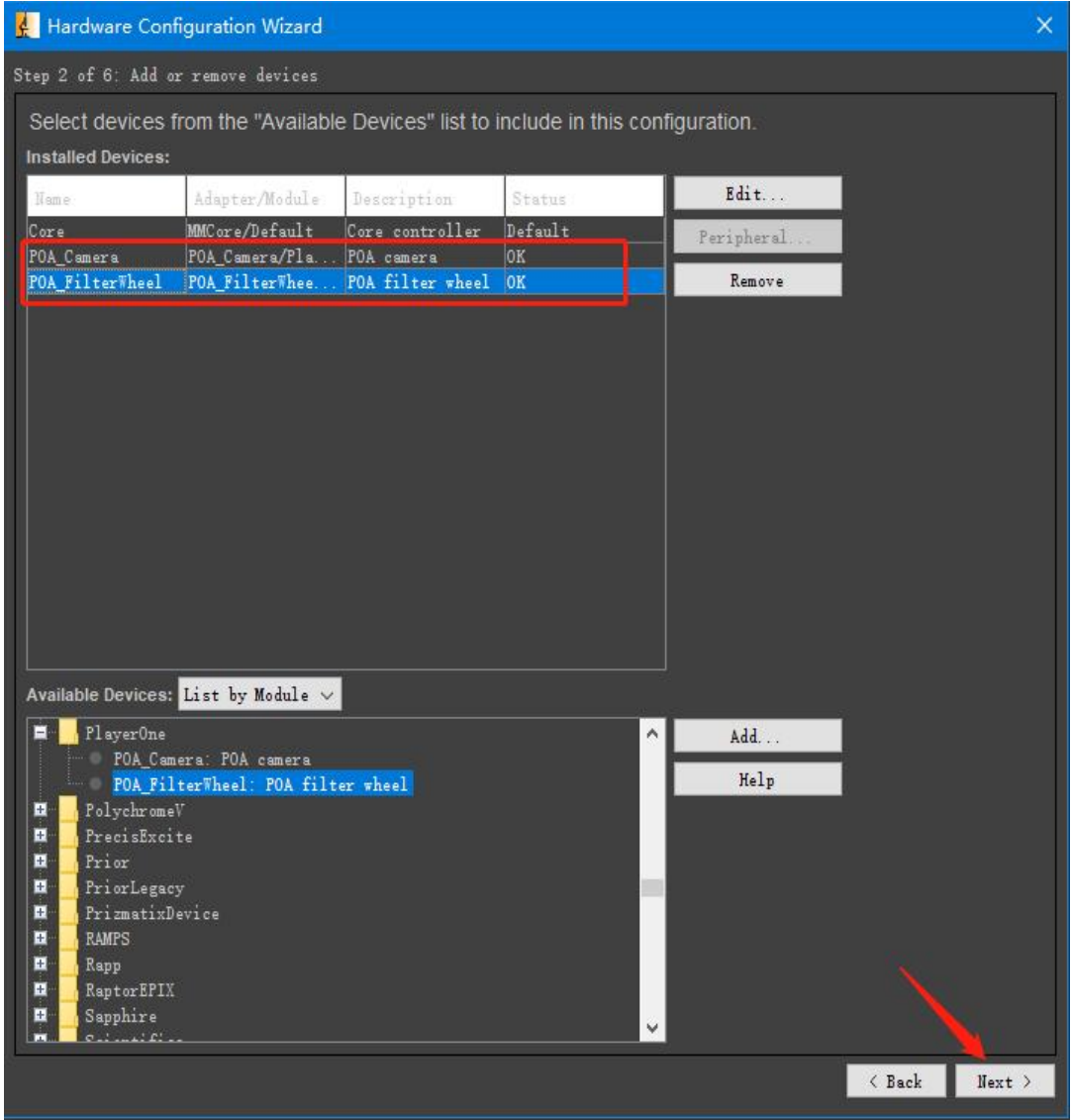
Double click the item of POA_Camera:



MaximumExposureMS: Set the camera's maximum exposure time, the default is 2000000ms.

Select Camera: If you have multiple cameras, you can choose the one you want to use.

If you have a Player One filter wheel, you can also add it:



Hardware Configuration Wizard

×

Step 3 of 6: Select default devices and choose auto-shutter setting

Select the default device, where available, to use for certain important roles.

Default Camera: POA_Camera ▾

Default Shutter: ▾

Default Focus Stage: ▾

☒ Use Autos shutter By Default

☐

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Next >

Hardware Configuration Wizard

Step 4 of 6: Set delays for devices without synchronization capabilities

Set how long to wait for the device to act before μ Manager will move on (for example, waiting for a shutter to open before an image is snapped). Many devices will determine this automatically; refer to the help for more information.

Name	Adapter	Delay [ms]	Help
POA_FilterWheel	POA_FilterWheel	0.0	

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Hardware Configuration Wizard

Step 5 of 6: Define position labels for state devices

Some devices, such as filter wheels and objective turrets, have discrete positions that can have names assigned to them. For example, position 1 of a filter wheel could be the DAPI channel, position 2 the FITC channel, etc. Assign names to positions here.

State devices	State	Label
POA_FilterWheel	0	position-0
	1	position-1
	2	position-2
	3	position-3
	4	position-4
	5	position-5
	6	position-6

Read

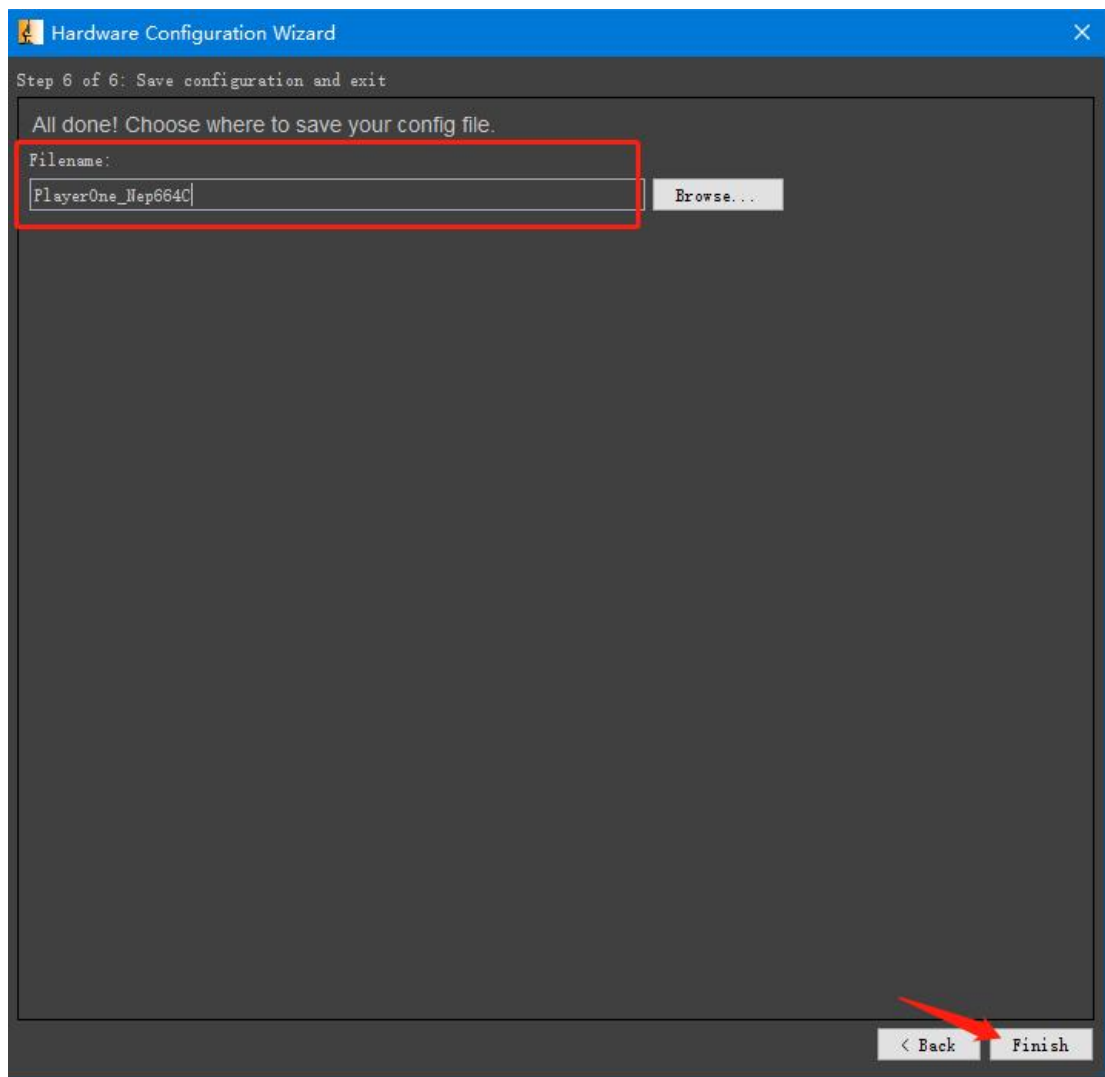
Reset

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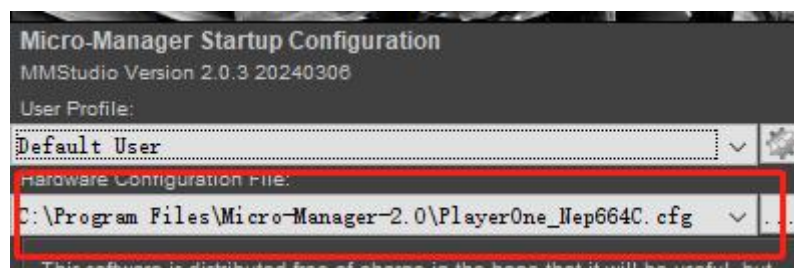
Next >

You can edit the filter name, like change 'position-0' to 'R'.

Please input the name of the configuration file.



Note: In later use, after Micro-Manager starts, select this configuration file:





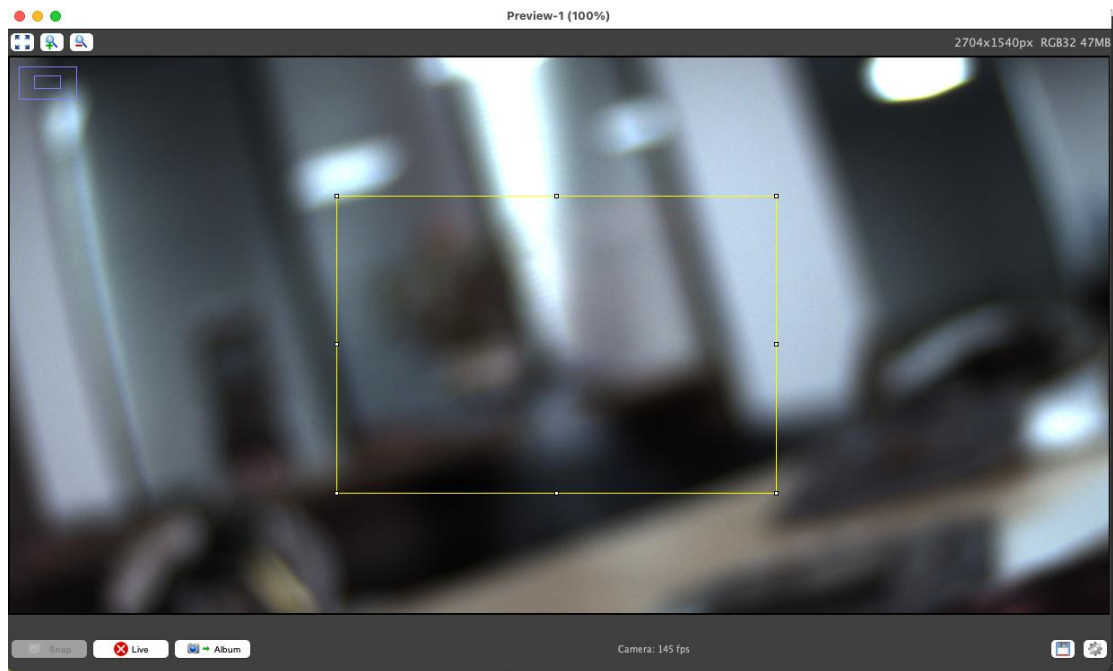
Snap: single frame

Live: video stream

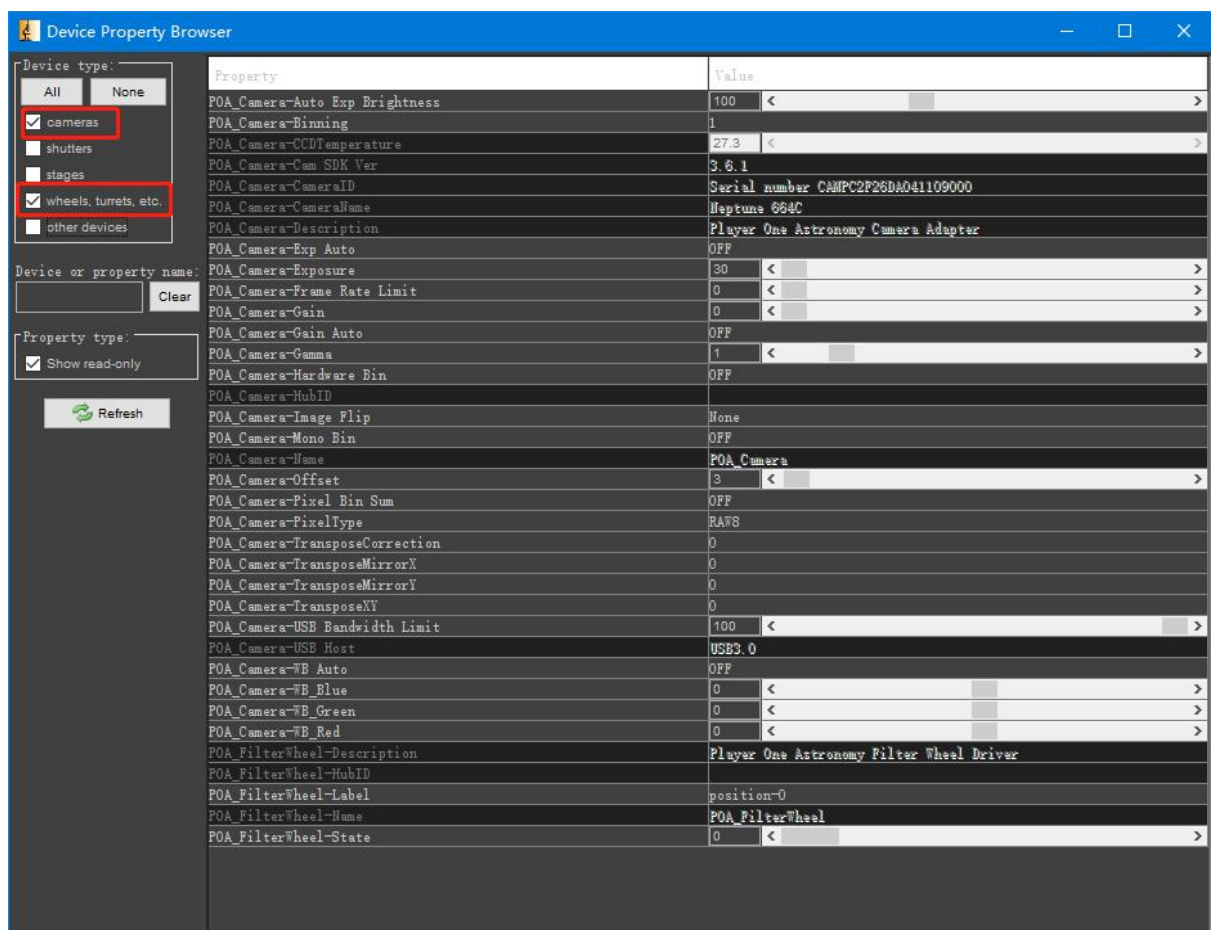
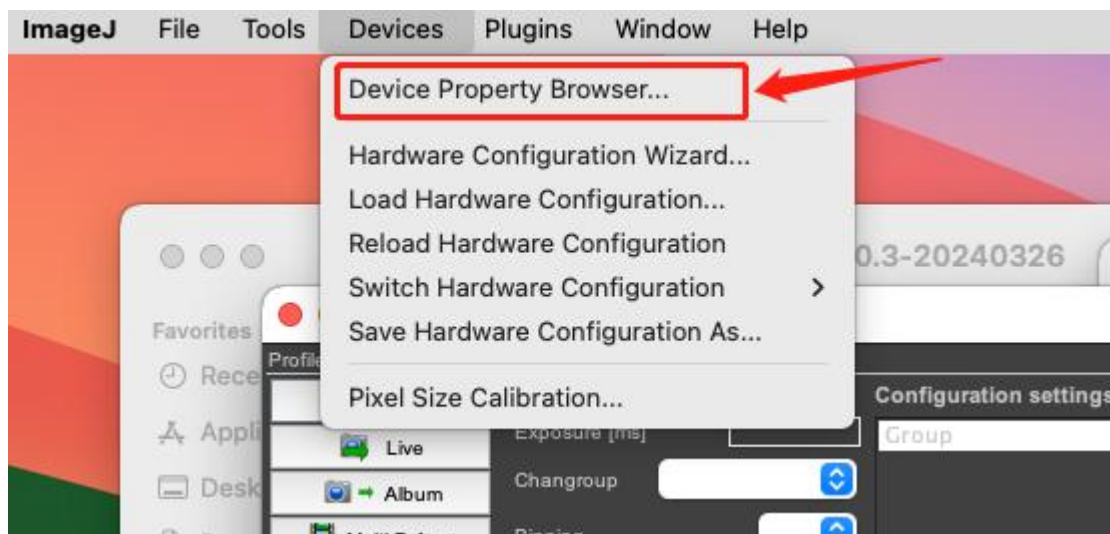
Exposure[ms]: exposure duration

Binning: image pixel binning

Drag a area to set the ROI:



To set more parameters, in menu, click *Devices->Device Property Browser*:



In Property Browser, you can set gain, white balance, cooling setting(if cooled camera)...

If you want to switch the filter of the filter wheel, please change the value of Label:
Note: the UI is frozen, when filter wheel is moving.

The screenshot shows the 'Device Property Browser' window. On the left, there are filters for 'Device type' (cameras, shutters, stages, wheels, turrets, etc., other devices) and 'Property type' (Show read-only). The main area displays a list of properties for a camera and a filter wheel. The 'FOA_FilterWheel-Label' property is highlighted with a red box, and a red arrow points to its dropdown menu, which lists positions 0 through 6. The 'FOA_FilterWheel-Label' property is currently set to 'position-0'.

Property	Value
FOA_Camera-Auto Exp Brightness	100
FOA_Camera-Binning	1
FOA_Camera-CCDTemperature	31.8
FOA_Camera-Cam SDK Ver	3.6.1
FOA_Camera-CameralID	Serial number CAMPC2P26DA041109000
FOA_Camera-CameralName	Heptune 664C
FOA_Camera-Description	Player One Astronomy Camera Adapter
FOA_Camera-Exp Auto	OFF
FOA_Camera-Exposure	30
FOA_Camera-Frame Rate Limit	0
FOA_Camera-Gain	68
FOA_Camera-Gain Auto	OFF
FOA_Camera-Gamma	1
FOA_Camera-Hardware Bin	OFF
FOA_Camera-HubID	
FOA_Camera-Image Flip	None
FOA_Camera-Mono Bin	OFF
FOA_Camera-Name	FOA_Camera
FOA_Camera-Offset	3
FOA_Camera-Pixel Bin Sum	OFF
FOA_Camera-PixelType	RGB32
FOA_Camera-TransposeCorrection	0
FOA_Camera-TransposeMirrorX	0
FOA_Camera-TransposeMirrorY	0
FOA_Camera-TransposeXY	0
FOA_Camera-USB Bandwidth Limit	100
FOA_Camera-USB Host	USB3.0
FOA_Camera-USB Host	ON
FOA_Camera-WB Auto	484
FOA_Camera-WB Blue	0
FOA_Camera-WB Green	36
FOA_Camera-WB Red	36
FOA_FilterWheel-Description	Player One Astronomy Filter Wheel Driver
FOA_FilterWheel-HubID	
FOA_FilterWheel-Label	position-0
FOA_FilterWheel-Name	
FOA_FilterWheel-State	