Using MIPI camera

The Raspberry Pi 5 combines the previous CSI and DSI interfaces into two dual-purpose CSI/DSI (MIPI) ports.

Configure camera

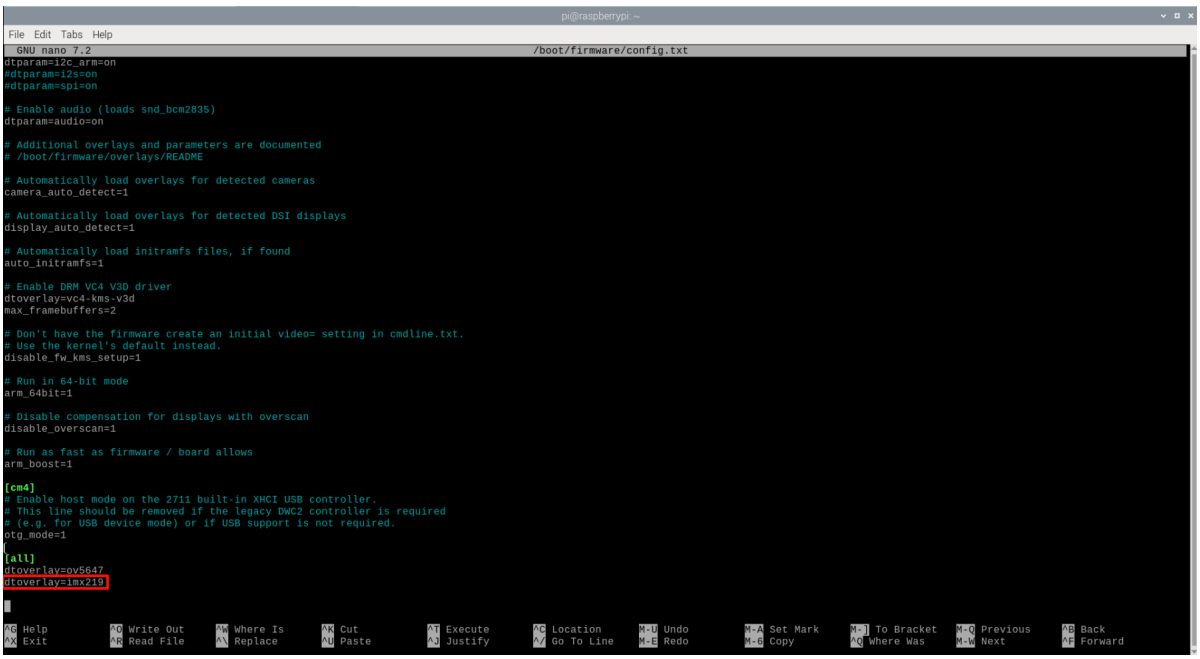
When using a Raspberry Pi camera or a third-party camera, you can modify the camera configuration according to the following table:

Camera module	File located at: /boot/firmware/config.txt
V1 Camera (OV5647)	dtoverlay=ov5647
V2 camera (IMX219)	dtoverlay=imx219
HQ Camera (IMX477)	dtoverlay=imx477
GS camera (IMX296)	dtoverlay=imx296
Camera module 3 (IMX708)	dtoverlay=imx708
IMX290 and IMX327	dtoverlay=imx290,clock-frequency=74250000 or (both modules share the IMX290 kernel driver; for the correct frequency, see the module vendor's instructions) dtoverlay=imx290,clock-frequency=37125000
IMX378 type	dtoverlay=imx378
OV9281 series	dtoverlay=ov9281

If you are not using the official Raspberry Pi camera, you can modify the config.txt file as shown in the table and add the dtoverlay content to the /boot/firmware/config.txt file.

```
sudo nano /boot/firmware/config.txt
```

For example: Raspberry Pi uses IMX219 camera, connect the camera to the Raspberry Pi J4 interface, and then modify the /boot/firmware/config.txt file:




```
To use the IMX219 camera, it needs to be connected to the J4 interface of
Raspberry Pi 5 for recognition!
```

Modify the configuration file and restart to take effect!

Use camera

Preview camera

- rpicam-hello

Entering this command in the terminal will display the preview window for about 5 seconds.

- rpicam-hello -t 0

Running this command in the terminal will always display the preview window. You can use the window close button and Ctrl+C to exit!

Photograph

- rpicam-jpeg -o test.jpg

Display a preview for 5 seconds, then capture the image and save it as a test.jpg file

- rpicam-jpeg -o test.jpg -t 2000 --width 640 --height 480

Show a preview for 2 seconds, then capture and save the image as a test.jpg file, with the image having a width of 640 pixels and a height of 480 pixels.

rpicam-still

This command can be used to save files in different formats:

```
rpicam-still -e png -o test.png
rpicam-still -e bmp -o test.bmp
rpicam-still -e rgb -o test.data
rpicam-still -e yuv420 -o test.data
```

- Raw image capture

```
rpicam-still -r -o test.jpg
```

- Time-lapse shooting

Capture images continuously at intervals of 2 seconds for a total capture duration of 30 seconds, and save each image as a file name similar to image0001.jpg:

```
rpicam-still -t 30000 --timelapse 2000 -o image%04d.jpg
```

Video

rpicam-vid

Commands for video recording using the camera module on the Raspberry Pi.

Example: Record 10 seconds of video and write to test.h264 file

```
rpicam-vid -t 10000 -o test.h264
```

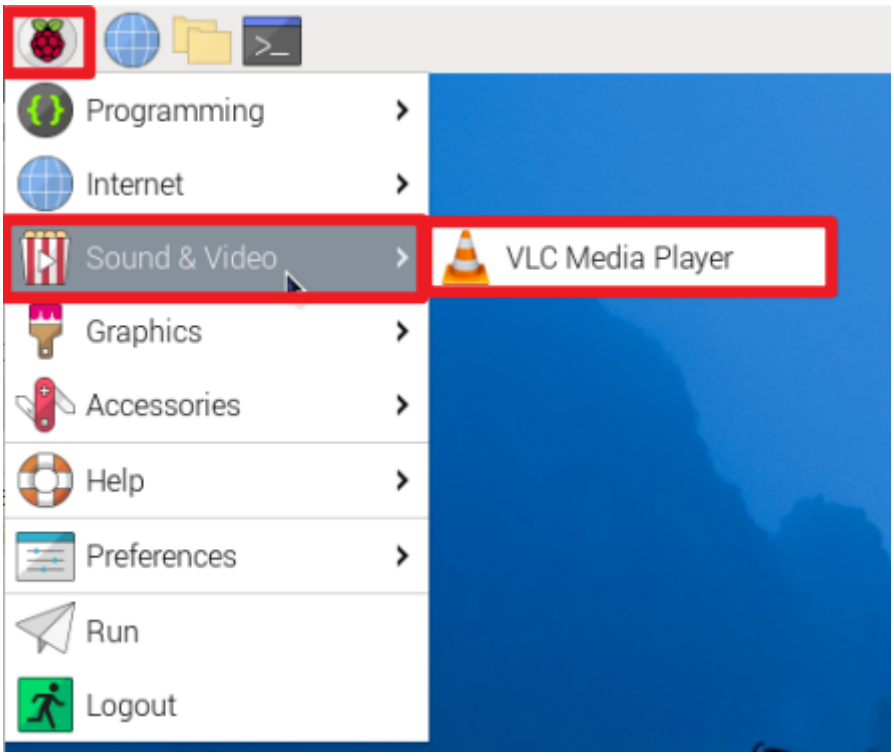
play video

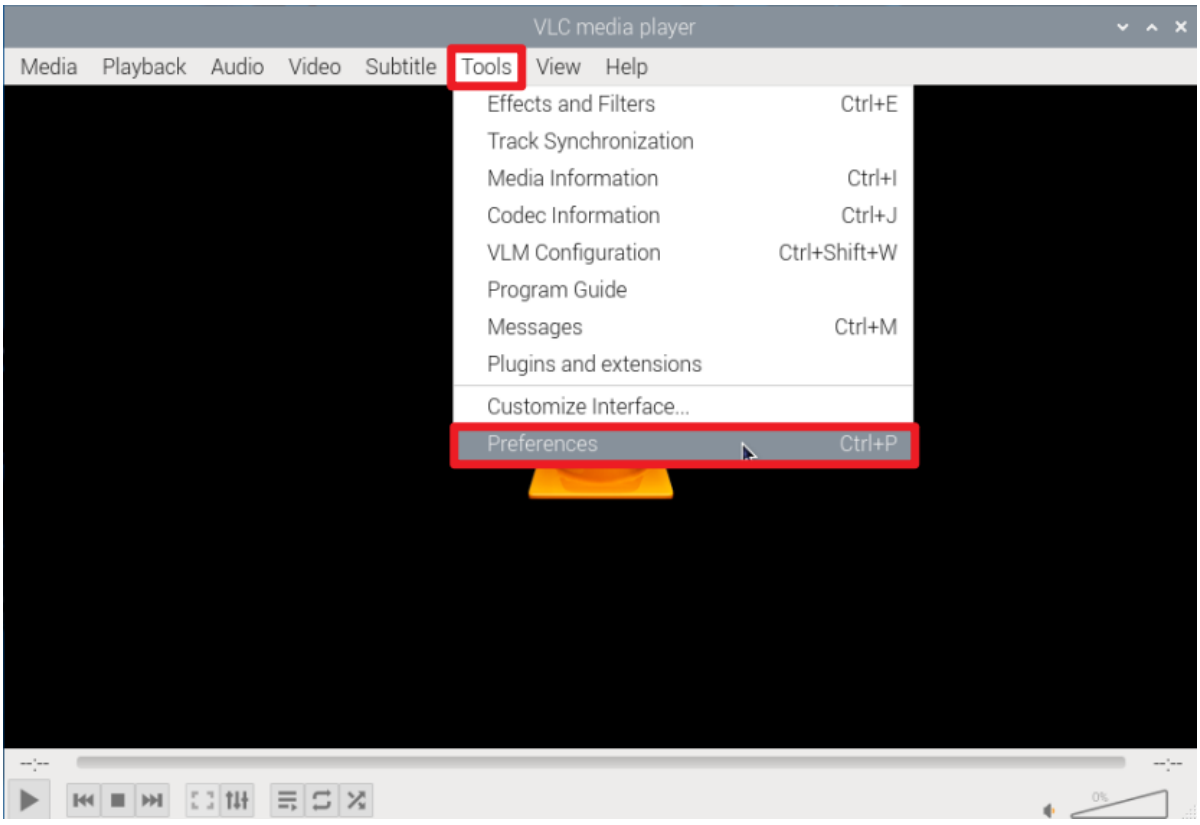
```
vlc test.h264
```

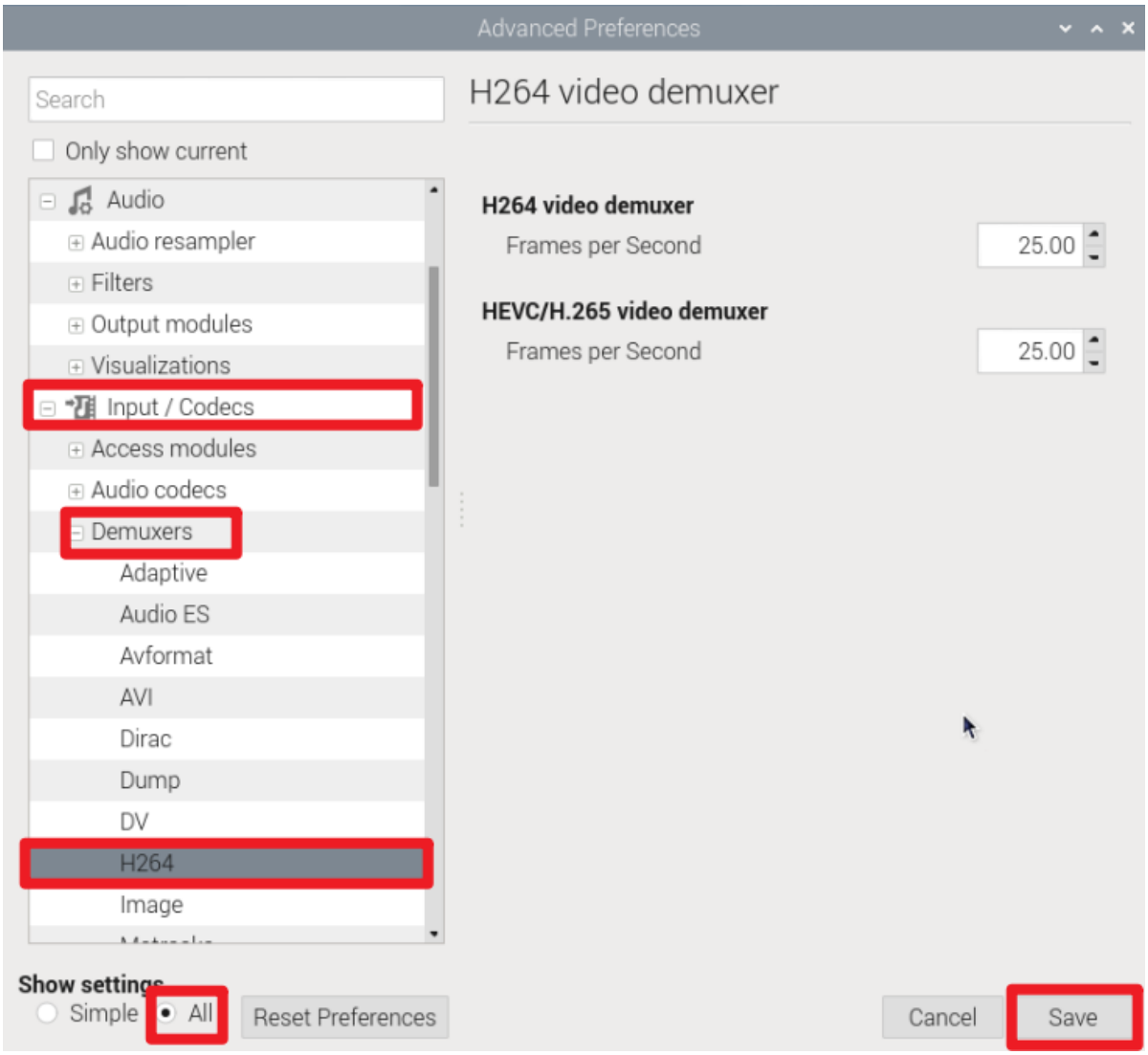
Note: If the test.h264 file cannot be played and an error occurs, please try the following method to solve it.

Error resolution

Modify the frame rate of H264 playback per second


Programming
Internet
Sound & Video
VLC Media Player
Graphics
Accessories
Help
Preferences
Run
Logout


VLC media player
Media
Playback
Audio
Video
Subtitle
Tools
View
Help
Effects and Filters Ctrl+E
Track Synchronization
Media Information Ctrl+I
Codec Information Ctrl+J
VLM Configuration Ctrl+Shift+W
Program Guide
Messages Ctrl+M
Plugins and extensions
Customize Interface...
Preferences Ctrl+P



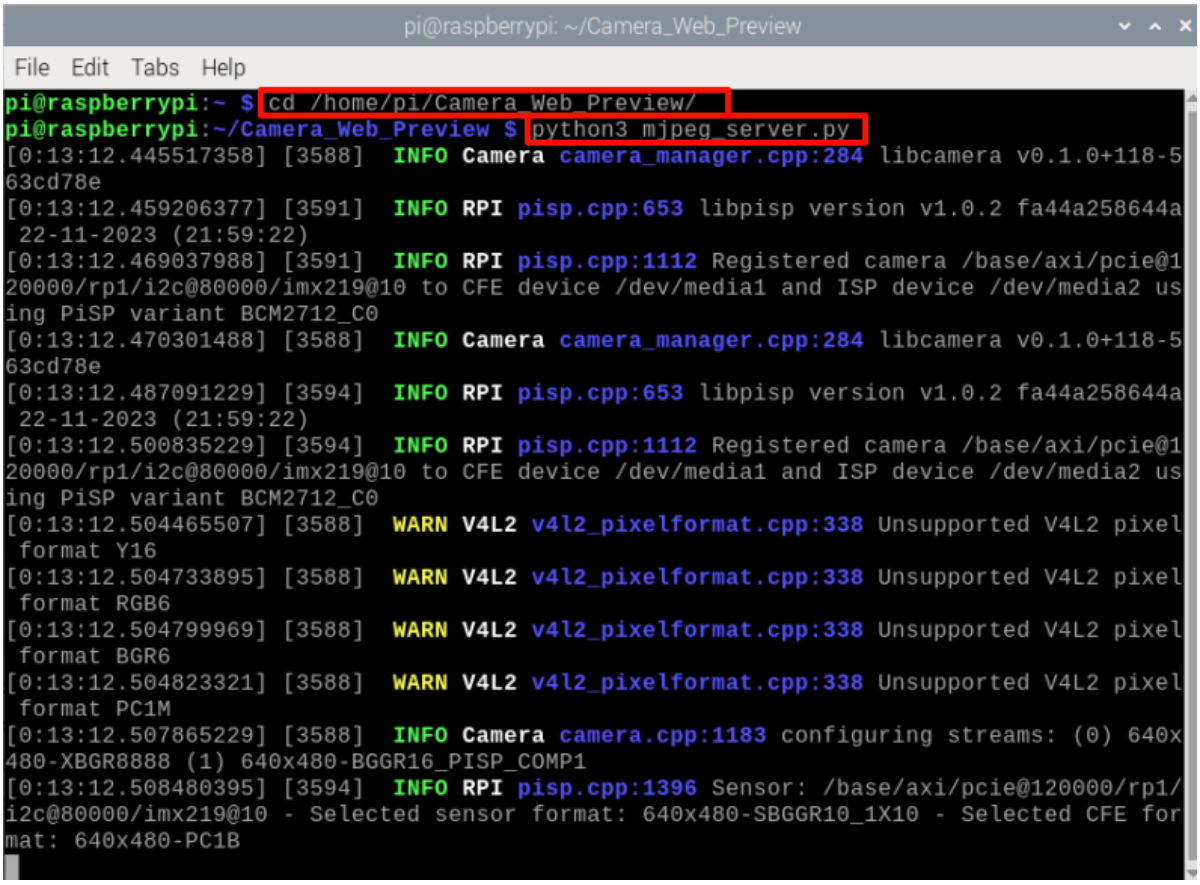
Web page preview camera

Use Python script files to preview camera images on web pages.

Run script

Code path:/home/pi/Camera_Web_Preview/

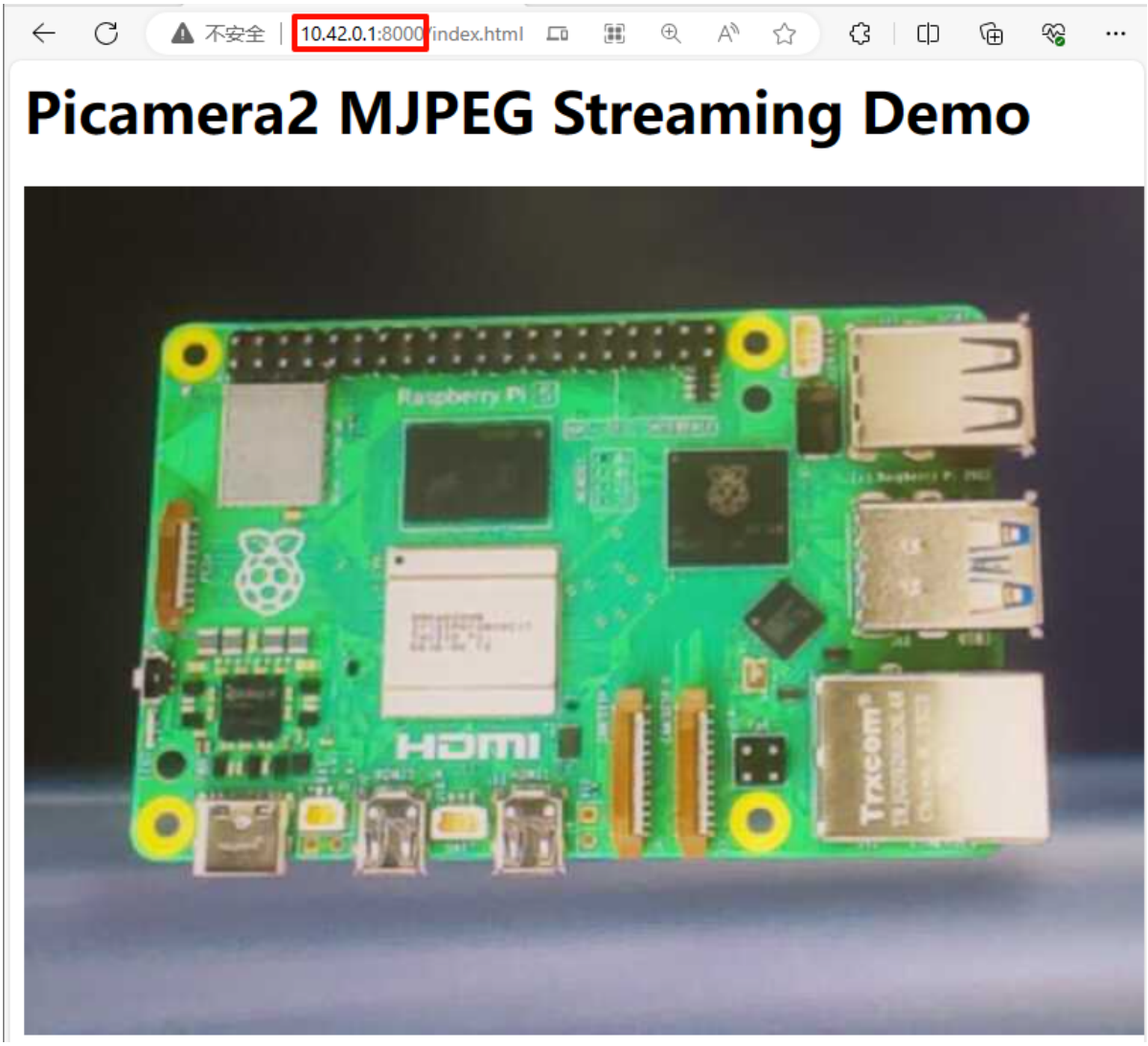
```
cd /home/pi/Camera_Web_Preview/
python3 mjpeg_server.py
```



Web access

Devices under the same LAN can enter :8000 through the browser to view the real-time camera view!

```
Example:
Raspberry Pi IP: 10.42.0.1
Web access: 10.42.0.1:8000
```



If you want to set up auto-start at boot, you can search for information online and set the script file to auto-start at boot!