

Raspberry Pi Camera on ZoneMinder

I spent a lot of time trying to find some good software to run on a Raspberry Pi to turn it into a camera. Even tried to write my own using Perl, but all the libraries are in Python, so it took too much for a simple project.

I found the v4l2rtspserver (<https://github.com/mpromonet/v4l2rtspserver>) and decided to try it. The author has a good page, but assumes I knew how to configure ZoneMinder (which was mistaken).

Anyway, no GUI needed, so I did the Raspberry Pi OS Lite (<https://www.raspberrypi.org/software/operating-systems/>) and set it up, then did the following. Ended up with a pretty decent camera that is not “phoning home” with all your images.

Following assumes you have raspian installed on a Pi with a camera attached.

Install v4l2rtspserver on camera

```
git clone https://github.com/mpromonet/v4l2rtspserver
cd v4l2rtspserver
cmake .
make
sudo make install
```

[v4l2rtspserver.service](#)

```
# systemd configuration for v4l2rtspserver
# /etc/systemd/system/v4l2rtspserver.service

[Unit]
Description=v4l2rtspserver rtsp streaming server
After=network.target

[Service]
#ExecStartPre=/usr/bin/v4l2-ctl --set-ctrl vertical_flip=1
ExecStartPre=/usr/bin/v4l2-ctl --set-ctrl h264_i_frame_period=5
ExecStart=/usr/local/bin/v4l2rtspserver -F 5 -W 640 -H 480
#ExecReload=/bin/kill -HUP $MAINPID
Type=simple
User=root
Group=video
Restart=always

[Install]
WantedBy=multi-user.target
```

```
systemctl start v4l2rtspserver
```

Zoneminder Configuration

Create a new monitor in ZoneMinder with the following parameters

- Source Type: Remote
- Remote Protocol: RTSP
- Remote Method: RTP/Unicast
- Remote Host Name: Hostname or IP
- Remote Host Port: 8554
- Remote Host Path: /unicast
- Capture Width: 640
- Capture Height: 480

You should soon see the output in zoneminder.

Production

For production, change the resolution of *both* the camera and the ZoneMinder configuration

1. Edit /etc/systemd/system/v4l2rtspserver.service
 1. Change -W and -H (width and height) to your desired parameters
 1. 1920 x 1080 (1080p) Gives you a lot of details, but also transfers a lot of traffic and is fuzzy
 2. 1280 x 720 (720p) Is a lot lower bandwidth and “prettier” picture
 3.

```
# reload the systemctl daemon
systemctl daemon-reload
# reload the config for v4l2rtspserver
systemctl restart v4l2rtspserver
# Set v4l2rtspserver to autostart
systemctl enable v4l2rtspserver
```
2. Edit Monitor on ZoneMinder
 1. Set Capture Resolution to same values as camera

Links

- <https://zoneminder.blogspot.com/p/rasbpeery-pi-zero-camera.html>
- <https://carlos-journal.blogspot.com/2017/05/setting-up-rtsp-server-in-raspberry-pi.html>
- <https://unix.stackexchange.com/questions/322720/why-wont-my-enabled-systemd-service-start-on-boot>

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<https://kb.unixservertech.com/software/zoneminder/picamera?rev=1622669313>

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