



surveillance software

What is *Motion*?

- Open source video surveillance software, written in C.
- Can take video source from any v4l device.
- Command line only.
- One config file per source (~/.motion/motion.conf about 1000 lines)
 - Well documented inline.
 - Sensitivity (minimum delta between frames)
 - Output configurable (still, video, timelapse)
 - Handles multiple devices (requires shared motion.conf + motion-device.conf)
 - Can trigger scripts on event detection.
 - LOTS AND LOTS OF OTHER STUFF.

Use Scenario

- Whole apartment building was treated for cockroaches last November.
- “from 10am to 4pm. Please wait until 4 hours after treatment before returning to apartment”
- Don’t want to stay out until 8pm “just in case”
- My requirements
 - Detect when someone enters our apartment.
 - Remotely check video to ensure against false positives.
 - Return home as soon as safe.

When did the cockroach man come?

- How I used it on Cockroach day
- ssh into my home box from my tablet (juiceSSH)

```
ls ~/motion/capture/motion_2017-11-28*.avi
```

```
/home/user/motion/capture/motion_2017-11-28_09-57-58.avi
```

```
/home/user/motion/capture/motion_2017-11-28_10-01-32.avi
```

```
/home/user/motion/capture/motion_2017-11-28_10-04-54.avi
```

```
/home/user/motion/capture/motion_2017-11-28_10-08-24.avi
```

```
/home/user/motion/capture/motion_2017-11-28_11-21-22.avi
```

Sure it's not a false positive?

- If you only have terminal access
 - `mplayer -quiet -vo caca ~/motion/capture/motion_2017-11-28_11-21-22.avi`
- If you have remote desktop / ssh -Y (and good bandwidth)
 - `mplayer -fs ~/motion/capture/motion_2017-11-28_11-21-22.avi`
- So back home by 3:30pm :)

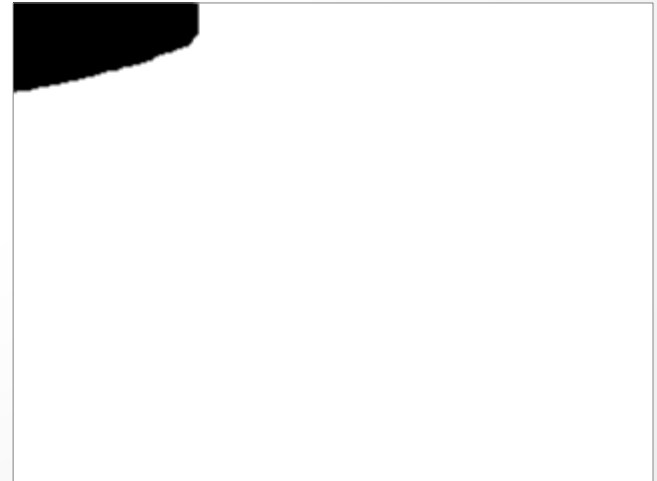
How to configure motion.conf

- Basic features
 - target_dir
 - threshold (# pixels change 1500)
 - movie_filename (motion_%Y-%m-%d_%H-%M-%S)
 - minimum_motion_frames (1)
 - event_gap (seconds before redetecting motion)
- My motion.conf file

Masks

- :) Block false positives.
- White show, Black ignore
- Grey intermediate sensitivity
- :(Manual process. Cannot move camera
- Smart Masks
- A passing cloud can trigger *Motion*

Images from lavrsen.dk



Trying to be clever

- I've not used these features, so cannot comment on efficacy.
 - *Webserver*
 - *Lightswitch* mode – ie upper limit to change that is ignored.
 - Tracking (pan/tilt)
 - *on_event_blah* run script
 - mysql/postgresql

Trailcam vs Motion

- A trail cam will run all winter on a few AA batteries.
- A Raspberry Pi *won't* run all winter on a few AA batteries.
- A trail-cam (IR sensor) often misses the action, and keeps recording when the show is over.
- *Motion* allows the capture of frames from *before* motion was detected
 - pre_capture <frames>
 - post_capture <frames>

What next...?

- I did run my Raspberry Pi A on lead acid battery and solar over the winter, tracking climate every 5 minutes.
- Will I be able to track climate every 5 minutes *and* constantly compare video frames with the same setup?
- Hook up a number of wide angle IR motion detectors to my Pi, and only launch *Motion* for an hour iff one of them triggers?

Links

- [https://en.wikipedia.org/wiki/Motion_\(surveillance_software\)](https://en.wikipedia.org/wiki/Motion_(surveillance_software))
- <https://motion-project.github.io/> (new home)
- <http://www.lavrsen.dk/foswiki/bin/view/Motion/WebHome> (old home)