

Video-2-Pi

A USB composite video grabber that's compatible with Raspberry Pi.

The device uses a standard UVC driver that doesn't require extra drivers and behaves a bit like a webcam. The USB port on a Raspberry Pi 3 (or earlier) isn't true USB2, so it can't capture 25fps video, but it can capture 720x576 PAL or NTSC 720x480 full resolution images from anything with a composite output: bird box cameras, CCTV cameras, microscopes and telescopes, modded ZX81 or ZX Spectrum, etc, etc. The new Raspberry Pi 4 supports full 25fps PAL and 29.97fps NTSC.

This device doesn't work with the fswebcam software, and while Cheese will show a live image it won't capture a photo or video. However, it is fully tested with the timelapse scripts detailed in this document.

To capture a photo from the USB video grabber

```
sudo apt-get -y install libav-tools
avconv -f video4linux2 -s 720x576 -i /dev/video0 -ss 0:0:1 -frames 1 photo.jpg
```

On the latest Buster build of Raspbian on a Pi 4, libav-tools isn't available so use ffmpeg instead:

```
ffmpeg -f video4linux2 -s 720x576 -i /dev/video0 -ss 0:0:1 -frames 1 photo.jpg
```

or interactive live heads up display on your Pi's desktop with

```
sudo apt-get install luvcview
luvcview -d /dev/video0 -f yuv -s 720x576
```



To capture a video (*substitute ffmpeg for avconv if using latest Raspbian Buster build*)

```
avconv -f video4linux2 -s 720x576 -i /dev/video0 test.avi
```

or

```
avconv -f video4linux2 -r 10 -i /dev/video0 test.avi
```

Here's a script that time and date stamps each filename.

```
nano timelapse
```

```
#!/bin/sh
while true; do
    d=`date +%d%m%y`
    t=`date +%T`
    t="${t//:}"
    avconv -f video4linux2 -s 720x576 -i /dev/video0 -ss 0:0:1
    -frames 1 image$d$t.jpg
    sleep 5
done
exit 0
```

```
chmod a+x timelapse.sh
```

```
./timelapse.sh
```

Ctrl-C to breakout of the program.

Here's a script that captures stills and then produces a timelapse.mp4 video file from them.

```
nano timelapse2.sh
```

```
#!/bin/sh
# script takes a photo every sixty seconds for one hour
# and produces a timelapse MP4 video file. By @SecuriPi

i=1
while [ $i -lt 60 ]
do
    echo $i
    y=`printf "%04d\n" $i`
    avconv -f video4linux2 -s 720x576 -i /dev/video0 -ss 0:0:1
    -frames 1 photo$y.jpg
    sleep 60
    i=$(( $i + 1 ))
done

avconv -r 10 -i photo%4d.jpg -r 10 -vcodec libx264 -vf
scale=720:576 timelapse.mp4
```

```
exit 0
```

save and exit

```
chmod a+x timelapse2.sh
```

```
./timelapse2.sh
```

Play around with the sleep value. If you're photographing slow growing plants, set the sleep delay to 3600, so it only takes a photo once an hour. Make it take more pictures by increasing the value in the While loop. Script will take up to 9999 images.

Python examples.

```
nano timelapse.py
```

```
import os
from time import sleep

counter = 0

while counter < 10:
    cmd = "avconv -f video4linux2 -s 720x576 -i /dev/video0 -ss
0:0:1 -frames 1 testphoto"+str(counter)+".jpg"
    os.system(cmd)
    sleep(3)
    counter = counter + 1
```

```
python timelapse.py
```

takes 10 numbered photos and pauses for 3 seconds between each photo. Simple to change the delay and number of photos.

This next example stores the picture with a time and date stamp in the filename

```
nano timelapse2.py
```

```
import os
from time import sleep
import datetime

counter = 0

while counter < 10:
    now = datetime.datetime.now().strftime("%y-%m-%d--%H-%M-%S")
    cmd = "avconv -f video4linux2 -s 720x576 -i /dev/video0 -ss
0:0:1 -frames 1 "+now+".jpg"
    os.system(cmd)
    sleep(3)
    counter = counter + 1
```

```
python timelapse2.py
```

We also have a guide for using the USB adapter with the OpenCV image processing framework, which you can download from www.securipi.co.uk/OpenCV.pdf

You can buy our USB video grabber for Raspberry Pi here:

<https://www.amazon.co.uk/dp/B072Q4MNKM>

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