HOW TO USE MJPG-STREAMER IN BBG

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1 Introduction

This guide will give you some ideas about how to:

- Use a webcam to do video streaming in BBG

- Capture photos in BBG

2   Install dependencies

2.1   Check the ethernet connect by:

ping 8.8.8.8

2.2   Add dependencies by:

sudo apt-get install g++ curl pkg-config libv4l-dev libjpeg-dev build-essential libssl-dev cmake

2.3   Troubleshooting:

If you get an error when doing "ping 8.8.8.8", try re-do Dr. Brian' s networking guide.

3 Install MJPG-Streamer

3.1 Download and Install MJPG-Streamer

```
# cd /mnt/remote

# mkdir mjpg-streamer

# cd mjpg-streamer

# git clone https://github.com/jacksonliam/mjpg-streamer

# cd mjpg-streamer/mjpg-streamer-experimental

# make

# make install
```

3.2 Troubleshooting:

If you cannot see "remote" folder under "/mnt", try re-do Dr. Brian' s NFS guide

4   MJPG-Streamer Start-up

4.1   Connect webcam to the BBG's USB port

4.2   Check if BBG detect the webcam by:

lsusb

You should see something like this:

(ID 038f:6001 is the webcam)

```
root@haosenc-beagle:/mnt# lsusb
Bus 001 Device 005: ID 038f:6001
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
root@haosenc-beagle:/mnt#
```

4.3   Check the webcam's specifications by:

v4l2-ctl --list-formats-ext

You should see something like this:

```
root@haosenc-beagle:/mnt/remote# v4l2-ctl --list-formats-ext
ioctl: VIDIOC_ENUM_FMT
        Index        : 0
        Type         : Video Capture
        Pixel Format: 'YUYV'
        Name         : YUYV 4:2:2
                Size: Discrete 640x480
                        Interval: Discrete 0.033s (30.000 fps)
                Size: Discrete 352x288
                        Interval: Discrete 0.033s (30.000 fps)
                Size: Discrete 320x240
                        Interval: Discrete 0.033s (30.000 fps)
                Size: Discrete 176x144
                        Interval: Discrete 0.033s (30.000 fps)
                Size: Discrete 160x120
                        Interval: Discrete 0.033s (30.000 fps)

        Index        : 1
        Type         : Video Capture
        Pixel Format: 'MJPG' (compressed)
        Name         : Motion-JPEG
                Size: Discrete 640x480
                        Interval: Discrete 0.033s (30.000 fps)
                Size: Discrete 352x288
                        Interval: Discrete 0.033s (30.000 fps)
                Size: Discrete 320x240
                        Interval: Discrete 0.033s (30.000 fps)
                Size: Discrete 176x144
                        Interval: Discrete 0.033s (30.000 fps)
                Size: Discrete 160x120
                        Interval: Discrete 0.033s (30.000 fps)
```

You will get some ideas about your webcam, in my case:

My webcam's resolution is 640*480

My webcam's fps is 30

My webcam's pixel format is YUYV

4.4   Based on the information we get from 4.3, we can run the MJPG-streamer by:

```
# ./mjpg_streamer -i "./input_uvc.so -d /dev/video0 -YOUR_PIXEL_FORMAT -fps YOUR_FPS -r YOUR_RESOLUTION" -o "./output_http.so -w ./www"
```

*You need to change the command in red based on your webcam's specification.

*For my hardware, my command is:

```
# ./mjpg_streamer -i "./input_uvc.so -d /dev/video0 -y -fps 30 -r 352*288" -o "./output_http.so -w ./www"
```

4.5   To see the video stream by open the browser and type:

```
http://192.168.7.2:8080
```

4.6   Troubleshooting:

If you cannot see the video stream on the browser, try use a lower resolution you found in 4.3

For example: Use 352*288 instead of 640*480

If you see an error "network:Failed to bind socket", try the following:

```
# lsof -i:8080
```

5 How to capture a photo?

5.1 Open another terminal

5.2 Capture a photo and name it "output.jpg" by:

wget http://192.168.7.2:8080/?action=snapshot -O output.jpg

6   References

http://embeddedtweaks.com/beaglebone-usb-webcam-mpeg-streamer-installation-tutorial/

https://coreinit.files.wordpress.com/2015/09/camera_streaming_bbb_to_android.pdf

https://www.raspberrypi.org/forums/viewtopic.php?t=109352