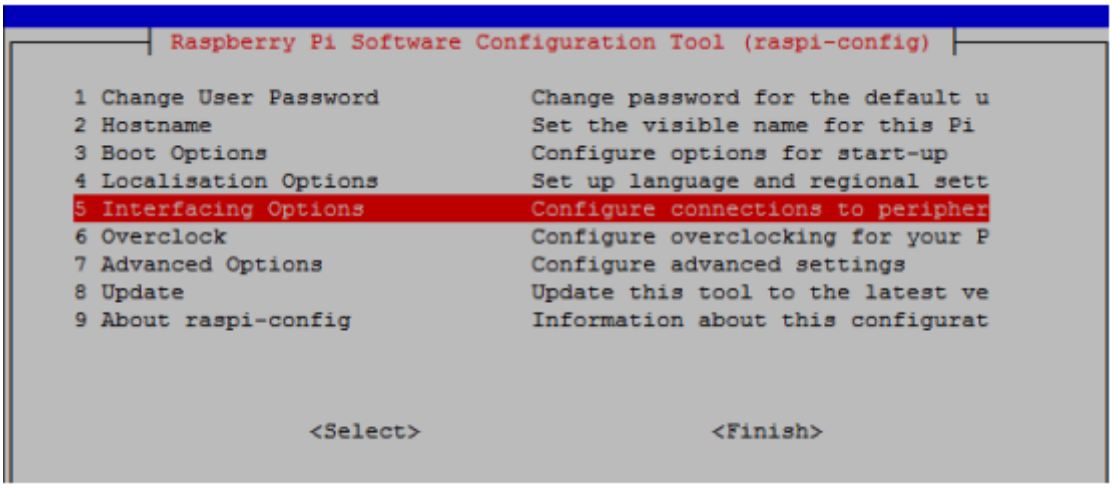
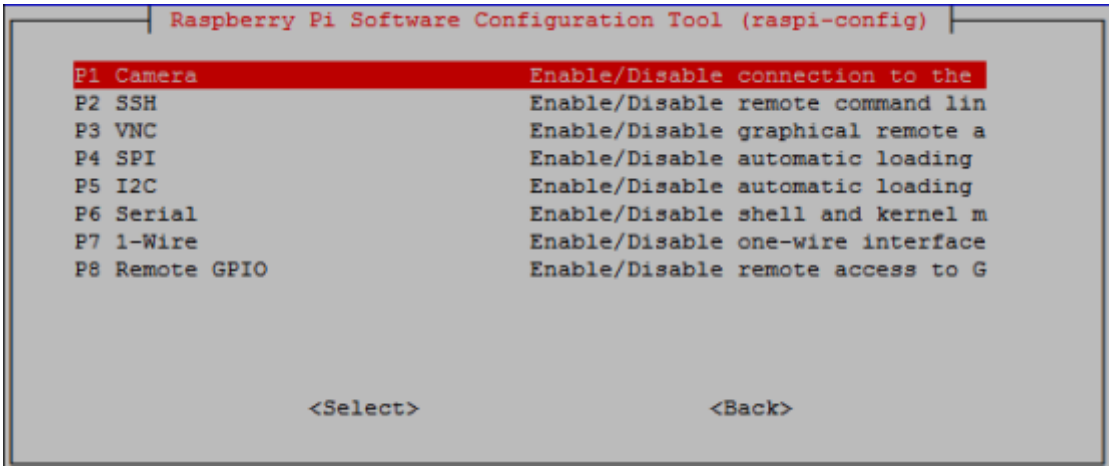
USB camera to capture pictures

Part 1-Open the camera service of Raspberry Pi

1. If you use Raspberry Pi official system image, you need to open the camera service. Input sudo raspi-config command to enter following interface.
2. Choose fifth option **[Interfacing Options]** and click **[Enter]** key to enter next interface.



3. ChoOse **[Camera]** to enable camera.



4. Finally, we need to reboot Raspberry Pi.
Input sudo reboot command.

Part 2-- Using camera to capture pictures

1. User must ensure that the camera is properly inserted into the Raspberry Pi board before supplying power to the Raspberry Pi board.

2. There are two kinds of commands that the Raspberry Pi terminal can use to detect external camera devices: ls/dev. (In some cases, you may be able to use the camera without seeing video0 service)
After we input following command, we can detect camera service.
As shown below.

```
pi@raspberrypi:~ $ su
Password:
root@raspberrypi:/home/pi# ls /dev/
autofs           loop-control        ram6     tty21  tty47      vc-cma
block            mapper              ram7     tty22  tty48      vchiq
btrfs-control    media0              ram8     tty23  tty49      vcio
bus              mem                 ram9     tty24  tty5       vc-mem
cachefiles       memory_bandwidth    random   tty25  tty50      vcs
char             mmcblk0             raw      tty26  tty51      vcs1
console          mmcblk0p1           rfkill   tty27  tty52      vcs2
cpu_dma_latency  mmcblk0p2           serial1  tty28  tty53      vcs3
cuse             mqueue              shm      tty29  tty54      vcs4
disk             net                 snd      tty3   tty55      vcs5
fb0              network_latency     stderr   tty30  tty56      vcs6
fd               network_throughput  stdin    tty31  tty57      vcsa
full             null                stdout   tty32  tty58      vcsa1
fuse             ppp                 tty      tty33  tty59      vcsa2
gpiomem          ptmx                tty0     tty34  tty6       vcsa3
hwrng            pts                 tty1     tty35  tty60      vcsa4
initctl          ram0                tty10    tty36  tty61      vcsa5
input            ram1                tty11    tty37  tty62      vcsa6
kmsg             ram10               tty12    tty38  tty63      vcsm
log              ram11               tty13    tty39  tty7       vhci
loop0            ram12               tty14    tty4   tty8       video0
loop1            ram13               tty15    tty40  tty9       watchdog
loop2            ram14               tty16    tty41  ttyAMA0    watchdog0
loop3            ram15               tty17    tty42  ttyprintk  xconsole
```

3. Input following command to install mplayer player.

sudo apt-get install mplayer -y

Wait patiently, after the installation is complete, you can see the interface shown below.

```
Selecting previously unselected package libvorbisidec1.
Preparing to unpack .../3-libvorbisidec1_1.2.1+git20180316-3_armhf.deb ...
Unpacking libvorbisidec1 (1.2.1+git20180316-3) ...
Selecting previously unselected package libxvmc1:armhf.
Preparing to unpack .../4-libxvmc1_2%3a1.0.10-1_armhf.deb ...
Unpacking libxvmc1:armhf (2:1.0.10-1) ...
Selecting previously unselected package mplayer.
Preparing to unpack .../5-mplayer_2%3a1.3.0-8+b5_armhf.deb ...
Unpacking mplayer (2:1.3.0-8+b5) ...
Setting up libvorbisidec1 (1.2.1+git20180316-3) ...
Setting up libenca0:armhf (1.19-1) ...
Setting up libxvmc1:armhf (2:1.0.10-1) ...
Setting up libaudio2:armhf (1.9.4-6) ...
Setting up libdirectfb-1.7-7:armhf (1.7.7-9) ...
Setting up mplayer (2:1.3.0-8+b5) ...
Processing triggers for libc-bin (2.28-10+rpi1) ...
Processing triggers for man-db (2.8.5-2) ...
Processing triggers for mime-support (3.62) ...
pi@raspberrypi:~ $
```

4. Input following command to install fswebcam video software.

sudo apt-get install fswebcam -y

```
pi@raspberrypi:~ $ sudo apt-get install fswebcam -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  fswebcam
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 43.5 kB of archives.
After this operation, 116 kB of additional disk space will be used.
Get:1 http://mirrors.zju.edu.cn/raspbian/raspbian buster/main armhf fswebcam arm
hf 20140113-2 [43.5 kB]
Fetched 43.5 kB in 10s (4,434 B/s)
Selecting previously unselected package fswebcam.
(Reading database ... 156506 files and directories currently installed.)
Preparing to unpack .../fswebcam_20140113-2_armhf.deb ...
Unpacking fswebcam (20140113-2) ...
Setting up fswebcam (20140113-2) ...
Processing triggers for man-db (2.8.5-2) ...
pi@raspberrypi:~ $
```

Input following command to view USB camera picture.

sudo mplayer tv://

5. After confirming the screen, you need to exit through “ctrl+c” before proceeding to the next operation.

If you run mplayer and use the fswebcam command at the same time, the system will prompt an error that the camera is busy. As shown below.

```
pi@raspberrypi:~ $ fswebcam -d /dev/video0 --no-banner -r 320x240 -S 10 /home/pi
/image.jpg
--- Opening /dev/video0...
Trying source module v4l2...
/dev/video0 opened.
No input was specified, using the first.
Error selecting input 0
VIDIOC_S_INPUT: Device or resource busy
pi@raspberrypi:~ $
```

6. Input following command to generate a real-time photo taken by the current camera in the /home/pi directory

fswebcam -d /dev/video0 --no-banner -r 320x240 -S 10 /home/pi/image.jpg

```
pi@raspberrypi:~ $ fswebcam -d /dev/video0 --no-banner -r 320x240 -S 10 /home/pi
/image.jpg
--- Opening /dev/video0...
Trying source module v4l2...
/dev/video0 opened.
No input was specified, using the first.
--- Capturing frame...
Skipping 10 frames...
Capturing 1 frames...
Captured 11 frames in 0.34 seconds. (32 fps)
--- Processing captured image...
Disabling banner.
Writing JPEG image to '/home/pi/image.jpg'.
pi@raspberrypi:~ $ ls
Desktop    Downloads  MagPi       mjpg-streamer-master  Pictures  Templates
Documents  image.jpg  master.zip  Music                 Public    Videos
pi@raspberrypi:~ $
```

Parameter explanation:

-d -- configure which camera device to use

--no-banner --- There is no watermark in the photos taken. If this parameter is not used, the system may prompt a wrong font

-r -- Size of picture

-S -- Visibility, the range is from 1 to 10. If this parameter is not set or this parameter is set to 0, the photo will be black.

/home/pi/image.jpg -- Save the image path (if you do not add the path, picture will be saved in the current directory /home/pi/ by default).