

Setting up a webcam on Ubuntu 9.04

By Denny Lin

www.lasierra.edu/~dlin

La Sierra University

The following instructions document steps to set up a webcam running on the Linux Ubuntu platform. The cost of this setup was mostly free; the only item paid for was a cheap used camera; the server computer was donated, and the software used is freely available on the Internet.

Hardware used:

Camera: IBM PC Camera Model KSX-X9903 bought for less than \$4 from a Thrift store. Help on getting the camera to work found here: <http://www.linux-usb.org/ibmcam/> and <http://www.linux-usb.org/ibmcam/ibmcamFAQ.html>

PC: Donated by Craig Kinzer. Consists of an Intel 1.70Ghz CPU, and 256MB of RAM, and a 6GB hard drive, powered by an Antec 300W power supply.

Software used:

Operating System: The (32-bit) desktop version of Linux Ubuntu 9.04 image was downloaded for free, and burned to a CD-ROM. The Ubuntu 9.04 image can be downloaded from <http://releases.ubuntu.com/jaunty/ubuntu-9.04-desktop-i386.iso>

Use a CD burner program (such as Nero or Roxio) to create an Ubuntu 9.04 CD-ROM.

Camera server: webcam-server by Mike and Donn Morrison, downloaded for free. More information on: <http://webcamserver.sourceforge.net/> and <http://hactivision.com/index.php/2009/06/16/setting-up-an-ubuntu-webcam-server>

Web server: Apache2 downloaded for free.

Firewall: ufw is included in Ubuntu 9.04; ufw stands for “uncomplicated fire wall”, which is a simple front end to manage iptables

Remote Desktop: vncviewer is part of Ubuntu 9.04

Instructions to set up a webcam server on Ubuntu 9.04:

1. Install Ubuntu 9.04:
 - a. Insert the Ubuntu 9.04 CD ROM and boot computer from the CD Rom
 - b. Select English
 - c. Select Install Ubuntu, press Enter
 - d. Step 1: Select English, Click Forward
 - e. Step 2: Set timezone to Los Angeles, Click Forward
 - f. Step 3: Select Use suggested option: USA, Click Forward
 - g. Step 4: Select Use the entire disk, Click Forward

- h. Step 5: Enter your name [administrator], login name: [administrator], password <enter twice>, name of computer [administrator-desktop], click Log In Automatically, Click Forward
 - i. Step 6 is automatically skipped. Step 7: Click Install
 - j. Restart computer: Click Restart Now
 - k. Remove CD ROM when prompted, and press Enter
2. Install and configure servers:
- a. Start terminal: Go to Applications -> Accessories -> Terminal
 - b. Type `sudo -i` press Enter, type in administrator's [password]
 - c. Change the computer's DHCP IP address to Static:
 - i. Go to the network directory. Type: `cd /etc/network`
 - ii. Modify the interfaces network settings file so the contents of that file looks like the following listing. In our case, we set the static IP address to 10.1.31.80; you may have to set yours to a different IP address. Consult your Internet Service Provider (ISP) or your Network Administrator for details about your particular environment. Type: `pico interfaces`

```
auto eth0
iface lo inet loopback
iface eth0 inet static
address 10.1.31.80
netmask 255.255.255.0
network 10.1.31.0
broadcast 10.1.31.255
gateway 10.1.31.1
```

 - iii. Exit pico: CTRL-X, Y(es) to save changes, and press Enter to accept filename and exit
- d. Configure the domain search and name server settings in the `resolv.conf` file.
 - i. Go to the `/etc` directory. Type: `cd /etc`
 - ii. Edit the `resolv.conf` file so the contents of that file looks like the following listing. In our case, the domain search is `lasierra.edu`, and our DNS server address is `192.156.214.14`. Consult your Internet Service Provider (ISP) or your Network Administrator for details about your particular environment. Type: `pico resolv.conf`

```
search lasierra.edu
nameserver 192.156.214.14
```

- iii. Exit pico: CTRL-X, Y(es) to save changes, and press Enter to accept filename and exit
- e. Restart network services. Type: `/etc/init.d/networking restart`
- f. Install webcam-server. Type: `apt-get install webcam-server`
- g. Install apache2 server. Type: `apt-get install apache2`, press Y to continue installation
- h. Copy webcam server files to apache server directory. Type: `cp /usr/share/doc/webcam/server/applet/* /var/www`
- i. Change to `/var/www`. Type: `cd /var/www`
- j. Edit `webcam.html` and change the URL to your ip address and frames per second to 5:
 - i. `pico webcam.html`
 - ii. look for the `http://localhost:8888` and change it to the number in step c. For example, if your server's IP address is 10.1.31.80, change this to `http://10.1.31.80:8888`

- iii. look for the FPS value= “1” and change it to “5”
 - iv. Exit pico: CTRL-X, Y(es) to save changes, and press Enter to accept filename and exit
 - k. Copy webcam.html to index.html. Type: cp webcam.html index.html
 - l. Install updates using Update Manager
 - m. Restart computer, Click Restart Now
- 3. Create and configure automatic start up scripts:
 - a. Type sudo –i press Enter, type in administrator’s [password]
 - b. Change to the Linux etcetera directory. Type: cd /etc
 - c. Add the following line to the /etc/modules file so that the ibmcam module is probed at startup. Type: pico modules


```
ibmcam init_hue=96 init_color=250 init_brightness=48 init_contrast=128 lighting=0
```
 - d. Change to Linux startup directory. Type: cd /etc/init.d
 - e. Create a startup script. Type: pico webcam_server


```
#!/bin/sh
webcam-server -r -c "Kiki The Monkey %D %H:%M:%S Viewers: %v" &
```
 - f. Exit pico: CTRL-X, Y(es) to save changes, and press Enter to accept filename and exit
 - g. Grant execute permission to the file you created. Type: chmod 755 webcam_server
 - h. Add link so the file is automatically executed when computer starts. Type: update-rc.d webcam_server defaults 99
 - i. Reboot computer. Type: reboot
- 4. (Optional) Setup Remote Desktop to manage webcam server remotely
 - a. Go to System menu, select Preferences, and select Remote Desktop
 - b. On the Remote Desktop Preferences dialog box:
 - i. Check the “Allow other users to view your desktop” and “Allow other users to control your computer” checkboxes
 - ii. Un-check the ‘You must confirm each access to this machine’ checkbox
 - iii. Check the “Require the user to enter this password” checkbox, and type in a secure password.
 - iv. Click the Close button
- 5. Setup the ufw firewall
 - a. Type sudo –i press Enter, type in administrator’s [password]
 - b. Check the ufw status. Type: ufw status (you should get a Status: inactive)
 - c. Set ufw to deny all connections by default. Type: ufw default deny
 - d. Allow browser traffic. Type: ufw allow 80
 - e. Allow secure shell traffic. Type: ufw allow ssh
 - f. Allow webcam traffic. Type: ufw allow 8888
 - g. Allow remote desktop traffic. Type: ufw allow 5900
 - h. Enable ufw. Type: ufw enable
 - i. Reboot computer: reboot

Your Ubuntu webcam should be up and running! Have fun!