ContaCam in WINE (Ubuntu) Howto:

This is a HowTo for the installation of ContaCam on Ubuntu Linux. This guide is written using the easiest methods possible; the terminal is avoided when possible but sometimes it is used to make the process easier. Steps are explained along the way. It is expected that this procedure should apply to all Debian distributions of Linux (Ubuntu/Xubuntu/Mint/etc.). This procedure was written and tested using Ubuntu 12.xx and 13.xx, both 32 and 64 bit. It is expected that this procedure will work with several releases of Ubuntu prior to 12.04 and future releases, but some minor tweaks may be required.

-Isaac from Indiana, USA
-enjoy!!

1. Install WINE. WINE allows Windows based programs to run in Linux.

    a. Add the repository:
        sudo add-apt-repository ppa:ubuntu-wine/ppa
    b. Update:
        sudo apt-get update
    c. Get and install WINE:
        sudo apt-get install wine

2. IMPORTANT!! If you are running a 64bit system, you need to configure WINE to use the 32bit binaries. By default, WINE on 64 bit systems tries to use the 64bit binaries, which can cause problems with several 32bit apps.

    a. To fix this, you need to create a 32bit WINE profile for ContaCam to use. Below is the example to delete the 64bit WINE configuration and use a 32bit configuration by default. If you have a need to keep the WINE 64bit configuration, you will have to create an alternate configuration file. Doing so is out of this guides scope. It is advised to use the 32bit binary configuration file by default if possible, as it does not have as many issues as the 64bit version.
        i. First delete the old WINE config file:
            sudo rm -rf ~/.wine
        ii. Then create a new WINE config file that will use the 32bit architecture:
            WINEARCH=win32 wineboot -update

3. IMPORTANT!! With its default setup, WINE 1.7 (highest version known, may affect higher versions) and below versions do not use the msvfw32.dll properly, and ContaCam <u>WILL</u> crash at seemingly random intervals. To fix this, you need to allow WINE to use the native windows msvfw32.dll instead of the WINE supplied builtin one.

    a. In the Ubuntu program list, search for and open the "Configure Wine" app.
    b. Select the Libraries tab, and click the dropbox for "New override for library". Select the msvfw32 dll from the list, and then select the "Add" button.
    c. Once msvfw32 shows in the "Existing_overrides" window, click the edit button to allow the override to <u>always</u> use the native file.
    d. Your Wine configuration utility should now look the same as the below image:
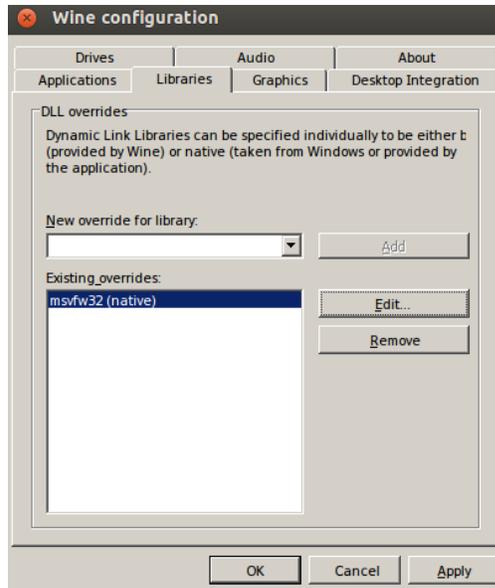
e. You now need to copy a native msvfw32.dll file from a windows 32bit system (XP is preferred) into the /.wine/dosdevices/c:/windows/system32 directory so that wine can use this native file.
　　i. First delete the builtin msvfw32.dll that is in the /.wine/dosdevices/c:/windows directory. Navigate to this directory easily by searching for "Browse C: Drive" from the Ubuntu Dash.

Browse C: Drive

　　ii. Copy your msvfw32.dll taken from a windows 32bit system or other source into this directory.

msvfw32.dll

　　　　1. You can find this file in the Windows system's C:\Windows\System32 directory.
　　　　2. Because of potential licensing issues, this file cannot be provided with this documentation.

4. Install LAMP (**L**inux-**A**pache-**M**ySQL-**P**HP) The internal webserver that ContaCam is prepackaged with will not work within WINE, so it is necessary to setup your own server, native in Linux.

a. First install tasksel...
　　sudo apt-get install tasksel
b. And then the LAMP stack:
　　sudo tasksel install lamp-server
　　i. Follow the onscreen prompts in the terminal to accept the license agreements if applicable.
c. Then check if it is working:
　　i. Type "localhost" in your Linux browser, you should see a page with the text "It works!".
　　ii. You may have to restart the Apache web server before it will work:
　　　　sudo service apache2 restart

5. Configure Apache to rid error "*Could not determine the server's fully qualified domain name, using 127.0.0.1*". This shows when running or restarting the unconfigured apache server from the terminal.

apache2.conf

a. Open the apache configuration file for editing:
   sudo gedit /etc/apache2/apache2.conf
b. Add the line "ServerName localhost" without the quotes under the Global Configuration header.
   i. Ubuntu 12.xx, search for "### Section 1: Global Environment", and add this text near the top of the file to let it be the first line of code:
      # Global configuration
      #
      ServerName localhost
   ii. Ubuntu 13.xx, the first two lines are already in the file. Search for the "#Global configuration" comment and add only the third line "ServerName localhost"

6. Change Apache port to match the port of your choice for ContaCam: this port will also have to be specified in ContaCam (details later):

ports.conf

a. Open the Apache port configuration file for editing:
   sudo gedit /etc/apache2/ports.conf
b. Change the Listen Port (Ubuntu 12.xx and 13.xx) and NameVirtualHost port (Ubuntu 12.xx only) to the port of your choice (something other than port 80 for the sake of security and compatibility - some apps like Skype use port 80 which may conflict)
   Example (Ubuntu 12.xx needs both lines, Ubuntu 13.xx needs only the second line)
      NameVirtualHost *:1125
      Listen 1125
   Note: if you wish to have other virtual hosts (sites), you only need to write two new lines specifying another matched NameVirtualHost and Listen port -and do not need to overwrite.
   Note: again, only Ubuntu 12.xx needs the "NameVirtualHost" line.

7. Edit (create) the ContaCam virtual host configuration file so that when the port (Example: 1125) is reached, it directs to the correct directory. This file will be located in the sites-available directory.
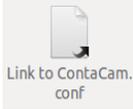

ContaCam.conf

a. With Nautilus file manager, navigate to /etc/apache2/sites-available:
   sudo nautilus /etc/apache2/sites-available
b. There will be a file called "default" (Ubuntu 12.xx) or "000-default.conf" (Ubuntu 13.xx) in this directory. Open that file. If the first line of this file is "<VirtualHost *:80>", then this is the correct file.
c. Save the file as "ContaCam" (for Ubuntu 12.xx) or as "ContaCam.conf" (for Ubuntu 13.xx) in the same directory.
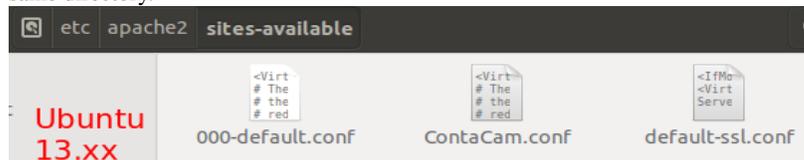
d. Change the first line to match your desired port (Example: 1125).
e. Change the third line of actual text to read: DocumentRoot /var/www/ContaCam
f. Save again, and close the file.
   i. For this tutorial, the folder /var/www/ContaCam is used, which Apache already has access to. It is not explained here how to give Apache access to a folder it does not already have access to. It is best to choose a folder (or create a subfolder) under the /var/www directory. Sometimes you may wish to use a separate drive or partition for saving videos. That is beyond the scope of this document, and you will have to make sure both Apache and ContaCam have privileges to the folder you choose.

8. Create a link to the ContaCam virtual host configuration file you just created in the /etc/apache2/sites-available directory.

Link to ContaCam.
conf

 a. Right click on the "ContaCam" (Ubuntu 12.xx) or "ContaCam.conf" (Ubuntu 13.xx) file from the /etc/apache2/sites-available directory and select "Make Link". A link will be made in this directory to this file.
 b. Cut and Move this link to the /etc/apache2/sites-enabled directory
 c. Rename this Link simply as "ContaCam.conf" (Ubuntu 12.xx) or "Link to ContaCam.conf" (Ubuntu 13.xx).
 d. Delete the "default" (Ubuntu 12.xx) or "000-default.conf" link. This is so port 80 (which is default port Apache listens to) is ignored. It is a good idea to not listen to port 80, as many other programs use it by default (Skype, etc.)

etc apache2 **sites-enabled**

Ubuntu 13.xx

Link to ContaCam. conf
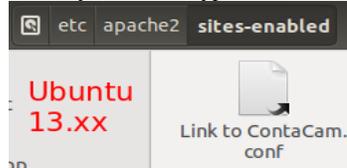
9. Add the folder "ContaCam" to the /var/www directory. Navigate to the directory, right click and select the option to add a new folder -and name it "ContaCam". This is where ContaCam will store its videos and where the ContaCam site is located.
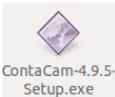
ContaCam

10. Get permissions for the /var/www/ContaCam folder so ContaCam can read/write to this folder. This is the folder that the Apache web server will access. You need to enable all read/write access to this folder for the Ubuntu system user.

    sudo chown -R **YourUserName** /var/www/ContaCam

 a. example: sudo chown -R billybob /var/www/ContaCam (If your username is billybob)
 b. Note: you <u>must</u> use a capital letter "R" for the above command.
 c. Now ContaCam has read/write access permissions to the same folder Apache can access.
 d. For this tutorial, the folder /var/www/ContaCam is used, which Apache already has access to. It is not explained here how to give Apache access to a folder it does not already have access to. It is best to choose a folder (or create a subfolder) under the /var/www directory. Sometimes you may wish to use a separate drive or partition for saving videos. That is beyond the scope of this document, and you will have to make sure both Apache and ContaCam have privileges to the folder you choose.

11. Download, and Install ContaCam.exe by right clicking on the .exe and selecting "Open With WINE Windows Program Loader".
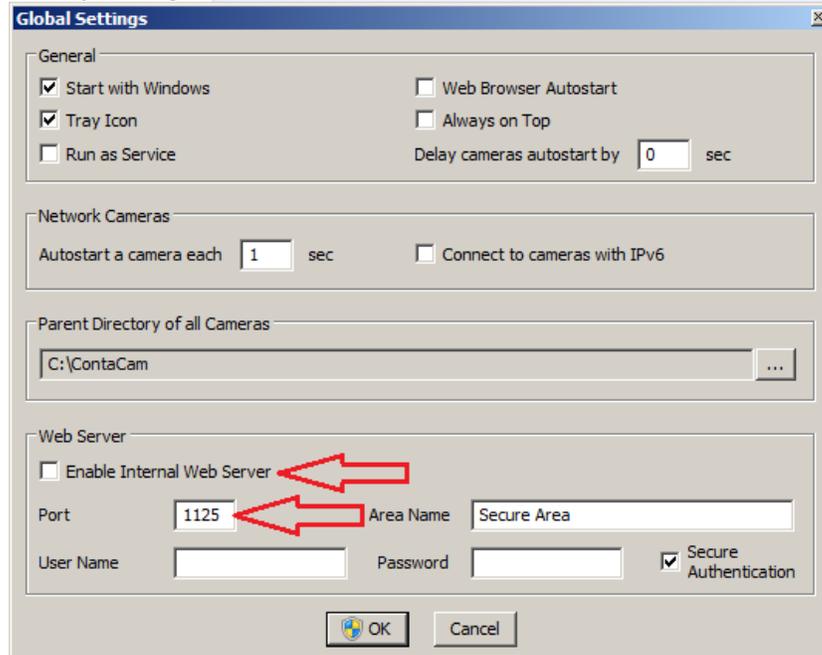
ContaCam-4.9.5-
Setup.exe

 a. Download from <u>www.contaware.com</u> download page.

12. Configure ContaCam's server port to match Apache setting from above:

ContaCam.exe

 a. In ContaCam, select File - Global Settings
 b. De-select the "Enable Internal Web Server" option (because you will have to use a native Linux server; ContaCam's internal apache server will not run -easily- under WINE) (It is also better to run a native server on your Linux system than to run one through WINE)

     c.   Enter the port number you've previously selected (Example 1125, from above)

     d.   Area Name, User Name, and Password do not matter here, as they are all criteria for the internal web server, which you are choosing not to use. You will setup security for your Apache web-server later in your setup.

13. Start at least one video capture via a network camera, or follow the steps for capture cards shown in the Appendix for getting Capture Card, USB, or unsupported network cameras to work with ContaCam. WINE does not support USB cameras (yet) or Capture Card input. If you want to use these with ContaCam, you will have to follow the procedure in the Appendix. Test your camera by going to localhost:<port> in your Linux browser. (Ex: localhost:1125)

14. Now move the ContaCam "Camera Folders" directory to /var/www/ContaCam (this is so Apache and ContaCam can access the same files)

     a.   In ContaCam, make sure to close all running cameras. If any are open before the move, the operation is **not** allowed.

     b.   In the ContaCam menu, select Tools - Move Camera Folders

     c.   In the dialogue that pops up, navigate to, and select the /var/www/ContaCam directory
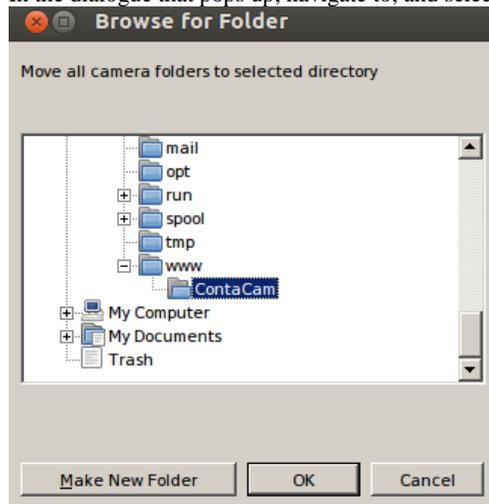
     d.   Exit ContaCam and start it again to bring up the capture again. This time, it will be running out of the /var/www/ContaCam directory.

15. Restart the Apache server, and ContaCam should appear in your browser as it would running natively in Windows:

sudo service apache2 restart
   a. If this has all worked, you should still have ContaCam successfully running on your LAN (local network). (Check by going to: localhost:<port> in your Linux browser.) –this is your port you setup above (Example: localhost:1125)

16. If you notice extra camera captures appear in the web server -that means ContaCam made a folder in your Apache directory for what it thought was a valid capture device. You may see a screen similar to this one:
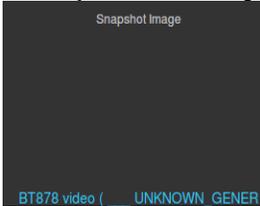
You can get rid of these extra "null" video feeds by going to your ContaCam video directory (/var/www/ContaCam) and delete the extraneous parent folders, or run ContaCam's Tools - Delete Camera Folder(s) dialogue.

17. Password protect your served web-page:

   a. You will need to create a password file and edit the apache2.conf file to setup login permissions. If the commands listed below result in a notification that something needs to be installed first, follow the terminal prompt to install.
   b. Create the password file /var/www/ContaCam/.htpasswd (This contains the list of usernames that are allowed to login, with their passwords specified here) *You must use the htpasswd command here*. You may be prompted to install apache2-utils to use the htpasswd utility. The command to install the apache2-utils is: sudo apt-get install apache2-utils
      sudo htpasswd -c /var/www/ContaCam/.htpasswd *LoginUserNameHere*
         i. This is the login name your ContaCam website will require.
         ii. You will be prompted for a password for the user name specified above.
   c. Edit the /etc/apache2/apache2.conf file's settings for the ContaCam directory. Add or modify this section of the file to have this text:

   <Directory /var/www/ContaCam>

      Options Indexes FollowSymLinks

      AllowOverride None

      AuthType Basic

      AuthName "ContaCam Login"

      AuthUserFile /var/www/ContaCam/.htpasswd

      Require valid-user

   </Directory>

   d. Restart your Apache server to apply the changes:
      sudo service apache2 restart
   e. Go to your server page again to make sure you are asked for your newly created credentials:
      i. localhost:<port>
         Ex: localhost:1125
      ii. you should see a window that asks for your authentication:
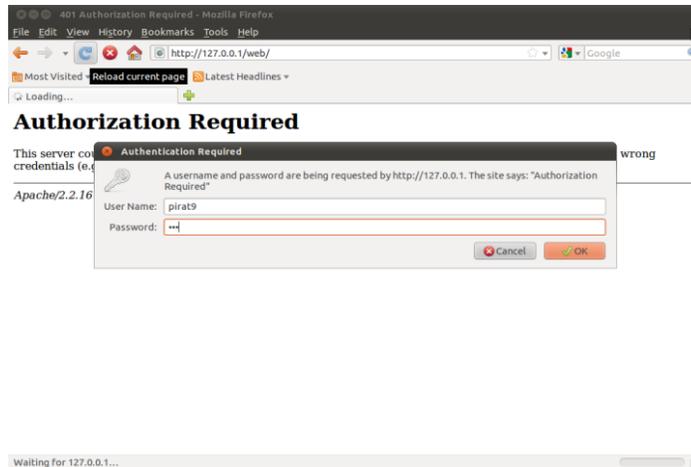
18. Make ContaCam run on Startup:

    a.   Place this text, (configured to your username and exact path to your ContaCam.exe path) in your Ubuntu startup applications:

           wine "c:\Program Files\ContaCam\ContaCam.exe"

    b.   If you are broadcasting streams through VLC, be sure to have the startup command for VLC start <u>before</u> ContaCam, so ContaCam has something to capture.

19. Broadcast ContaCam to the WAN (worldwide network -outside your local network –so you can reach ContaCam away from your local network over the Internet). This is a matter of setting the correct port forwarding settings in your router. If you don't know how to port forward then Google around for a how-to for your router model's specifics.

20. Finally, as a suggestion, allow your surveillance system to recover from a power failure. Set your PC's BIOS settings to power on your server computer and set Ubuntu (or whatever your distribution) to automatically login so that ContaCam can automatically start. The Apache server will always start automatically.

Appendix:

Support for PCI Capture cards, USB cameras, RTSP (H.264 and MPEG-4), and other types of video input:

WINE has a hard time passing through hardware to windows applications such as ContaCam. Capture (PCI) cards and USB cameras will not work natively in ContaCam through WINE. This is a WINE issue, not an issue with ContaCam. You can, however, use VLC in your Ubuntu OS to make a stream of this video to a port, and then with ContaCam you can capture that port as if the device stream were a normal network stream (as this is what you'll essentially be doing).

How to setup one or more component inputs (video capture card example)

You must first get your capture card working natively in Linux. PCI Capture cards that require (maker only provides) a Windows driver, may not work. Generic cards with the BT8xx chip work well. Please research ways to get your video capture card working in Linux before continuing.

Although your capture card is able to give a live feed to your Linux system, WINE does not support the passthrough of some hardware, such as Component Input capture cards (for now). The way to get these inputs to work is by changing the format of the video and porting the video into ContaCam via an http port.

To start, it is easier to test your device with the VLC user interface. Once the proper configuration is found, those settings can be applied to a method that will allow for automatic streaming upon system login. Here's the how to:

1. Install VLC video player if you are using capture cards (or H.264 or MPEG-4, USB, or other unsupported network cameras.)

   Via the Ubuntu Software Center:
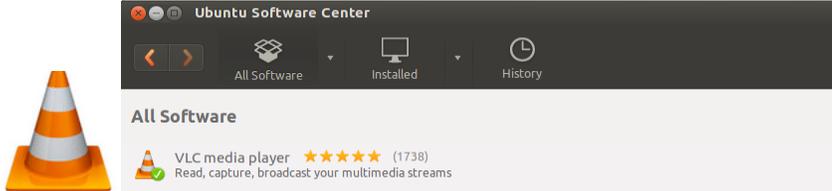
2. Launch an instance of VLC by finding it in your programs list.
3. Press the play icon, a screen will pop up.
4. Select the Input Capture Device Tab
5. Select your video Device and the format (NTSC for USA, PAL for Europe), click the drop button, and select "Stream".
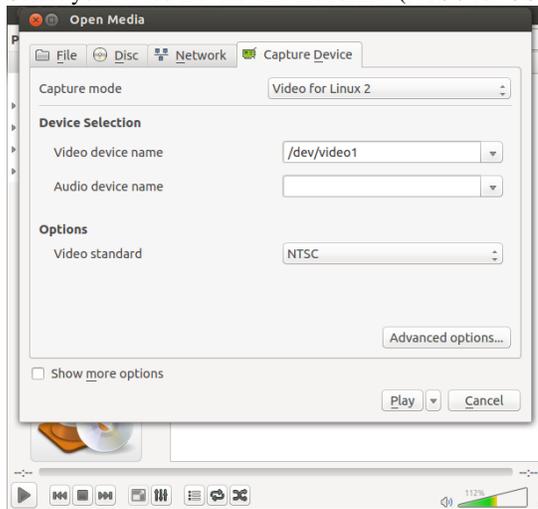
6. You will see this screen: (take note of the text shown in the Source textbox for later use)
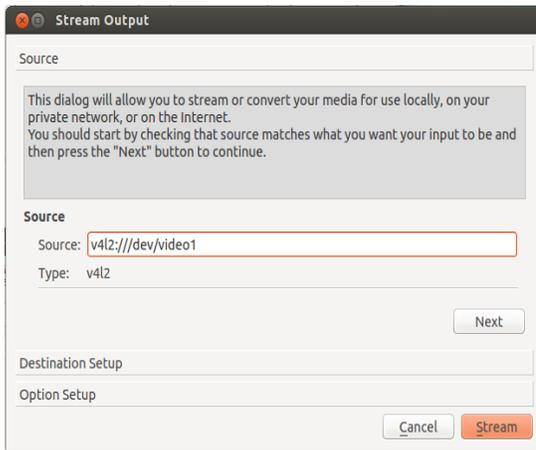
7. Select next, (NOT STREAM YET...) then select next again: we can ignore these values because we will overwrite them on the following screen.
8. On this screen, you will see a textbox for output. Provided is an example for streaming as a multipart jpeg, which ContaCam requires.
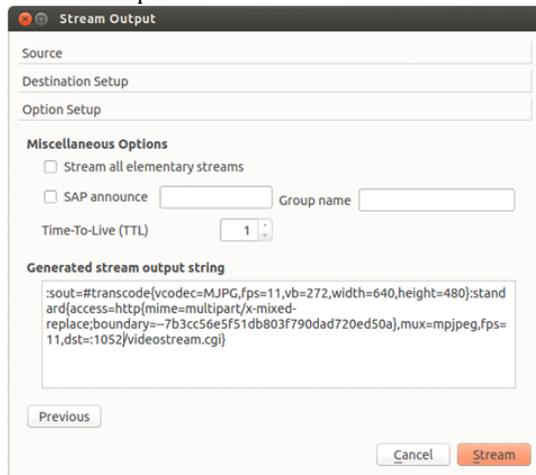
9. Put this text in the box, for streaming on port 1052, at 11fps (attention paste that on a single line):

sout=#transcode{vcodec=MJPG,fps=11,vb=272,width=640,height=480}:standard{access=http{mime=multipart/x-mixed-

replace;boundary=--7b3cc56e5f51db803f790dad720ed50a},mux=mpjpeg,fps=11,dst=:1052/videostream.cgi}

10. Check to see if the stream is working by going to your Linux browser
    a. localhost:1052/videostream.cgi (use the port you specified)
    b. Your video should be streaming here, if so, success! If not, make sure your capture card is actually working in Linux as stated before. Then maybe try a different format for your card instead of NTSC or PAL. Additional troubleshooting may require some research on your part.
    c. Note: VLC has issues sometimes trying to stream less than 10fps. Sometimes if you try to stream less than 10fps, VLC will default to the fastest fps your capture card (or other device) can provide.
11. Once you know your video-streams will work properly, you can run the streams in one instance of VLC on startup of your system, without having to launch the VLC user interface or have multiple instances running to stream multiple videos:
    a. You will need to create a configuration file that contains the stream configurations for one or more video streams.
    b. Create a file with a name of your choice, ending with the ".conf" extension. (Example: Capture.conf) Put this file somewhere on your system, such as the /Documents directory.
    c. For each video you wish to stream from your component, place this grouping of text in the file, configured to your needs (attention no line break in "setup CameraName output" line):

        new CameraName broadcast loop enabled

        setup CameraName input v4l2:///dev/video1

        setup CameraName output

#transcode{vcodec=MJPG,fps=10,vb=272,width=640,height=480}:standard{access=http{mime=multipart/x-mixed-

replace;boundary=--7b3cc56e5f51db803f790dad720ed50a},mux=mpjpeg,fps=11,dst=:1052/videostream.cgi}

setup CameraName option v4l2-standard=NTSC

setup CameraName option input-slave=alsa://

setup CameraName option live-caching=300

control CameraName play

    d. The above text is an example configuration file. Edit the above text you place in your configuration file to fit your needs.
- i. Change the name "CameraName" to something of your liking. This must be different for each stream you configure in this file.
- ii. The second line contains the input device that was shown in the user interface when you tested earlier (noted from above, in this section).
- iii. For the 4th line, starting with "#transcode", you need to substitute this line with your own configuration line that you used in step #7 in this section. Ignore the text before the "#" symbol. (Get rid of the ":sout=) text.

    e. You can now use VLC to stream this content. Type the following text into the command terminal to start your streams. From the command terminal, type:

        vlc -I telnet --vlm-conf </path/to/yourfilename.conf>
- i. IMPORTANT: be sure to use the full directory for your configuration file.

        Ex: vlc -I telnet --vlm-conf /home/username/Documents/configfile.conf
- ii. If you get an error that says permission denied you may have to allow VLC permissions to that directory.

        sudo chown -R **YourUserName** /home/username/Documents

12. You should now be able to reach your streams via the web browser. Check again by going to localhost:1052/videostream.cgi (use the port you specified if not 1052)
13. You can make this command run at startup by launching "Startup Applications" from your Ubuntu applications list. Add an item to the list and place the command in the "command" text box, and provide a helpful description for yourself. Make sure this is listed to start before ContaCam starts.
14. You can now receive these streams in ContaCam as if they were a network camera.

    a. For the running example in this section, localhost port 1052 is used. The below configuration shows the ContaCam settings for getting this stream into ContaCam. (You do not need to include the text "/videostream.cgi") - ContaCam figures that out.