

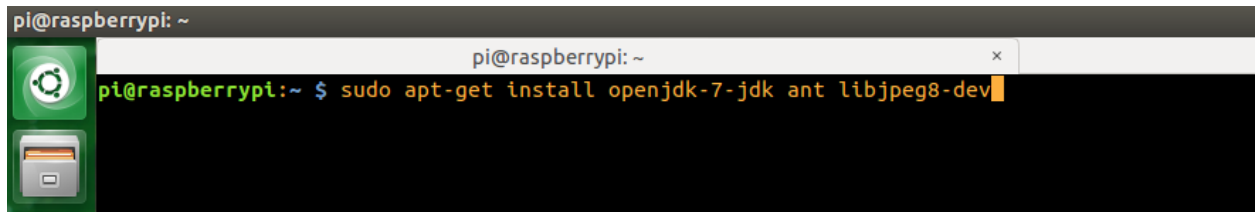
# Installing V4l4j

For the ucam handler to work two things are needed, the video driver of the camera which comes by default and the v4l4j library. The steps below show installing of v4l4j library

## Steps:

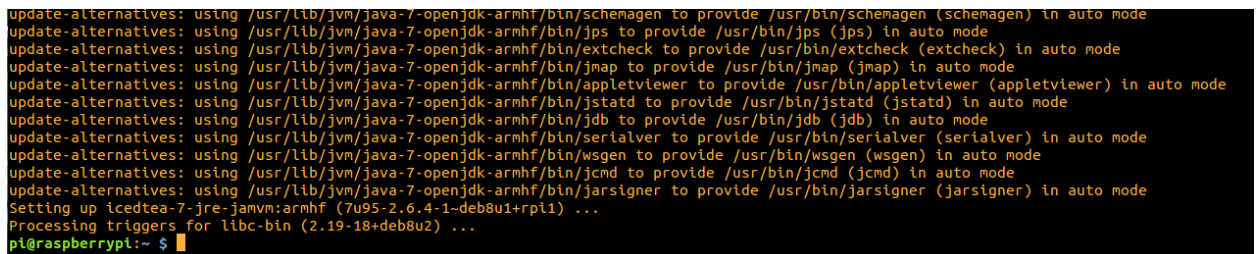
1. Before installing the v4l4j some packages are needed to be installed. If you are running debian based operating system type the command

```
sudo apt-get install openjdk-7-jdk ant libjpeg8-dev
```



```
pi@raspberrypi: ~  
pi@raspberrypi:~ $ sudo apt-get install openjdk-7-jdk ant libjpeg8-dev
```

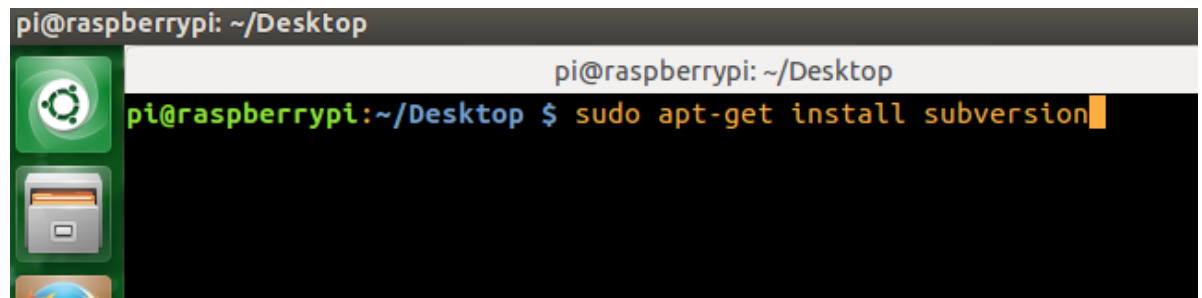
It will download and install the required prereqs,



```
update-alternatives: using /usr/lib/jvm/java-7-openjdk-armhf/bin/schemagen to provide /usr/bin/schemagen (schemagen) in auto mode  
update-alternatives: using /usr/lib/jvm/java-7-openjdk-armhf/bin/jps to provide /usr/bin/jps (jps) in auto mode  
update-alternatives: using /usr/lib/jvm/java-7-openjdk-armhf/bin/extcheck to provide /usr/bin/extcheck (extcheck) in auto mode  
update-alternatives: using /usr/lib/jvm/java-7-openjdk-armhf/bin/jmap to provide /usr/bin/jmap (jmap) in auto mode  
update-alternatives: using /usr/lib/jvm/java-7-openjdk-armhf/bin/appletviewer to provide /usr/bin/appletviewer (appletviewer) in auto mode  
update-alternatives: using /usr/lib/jvm/java-7-openjdk-armhf/bin/jstatd to provide /usr/bin/jstatd (jstatd) in auto mode  
update-alternatives: using /usr/lib/jvm/java-7-openjdk-armhf/bin/jdb to provide /usr/bin/jdb (jdb) in auto mode  
update-alternatives: using /usr/lib/jvm/java-7-openjdk-armhf/bin/serialver to provide /usr/bin/serialver (serialver) in auto mode  
update-alternatives: using /usr/lib/jvm/java-7-openjdk-armhf/bin/wsgen to provide /usr/bin/wsgen (wsgen) in auto mode  
update-alternatives: using /usr/lib/jvm/java-7-openjdk-armhf/bin/jcmd to provide /usr/bin/jcmd (jcmd) in auto mode  
update-alternatives: using /usr/lib/jvm/java-7-openjdk-armhf/bin/jarsigner to provide /usr/bin/jarsigner (jarsigner) in auto mode  
Setting up icedtea-7-jre-jamvm:armhf (7U95-2.6.4-1-deb8u1+rp1) ...  
Processing triggers for libc-bin (2.19-18+deb8u2) ...  
pi@raspberrypi:~ $
```

2. To download the v4l4j you need subversion(svn) tool, download and install it as shown below

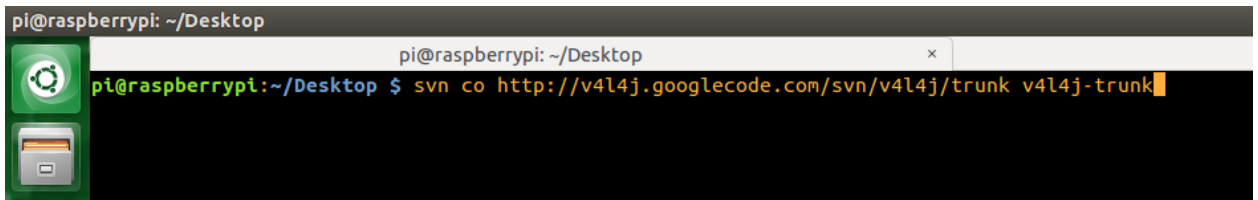
```
sudo apt-get install subversion
```



```
pi@raspberrypi: ~/Desktop  
pi@raspberrypi:~/Desktop $ sudo apt-get install subversion
```

3. Now download the library using the following command

```
svn co http://v4l4j.googlecode.com/svn/v4l4j/trunk v4l4j-trunk
```



```
pi@raspberrypi: ~/Desktop
pi@raspberrypi:~/Desktop $ svn co http://v4l4j.googlecode.com/svn/v4l4j/trunk v4l4j-trunk
```

4. Then go to the v4l4j-trunk directory (cd v4l4j-trunk) and start the build process by typing the command shown below

**\*On Raspbian Wheezy (Raspberry pi):\***

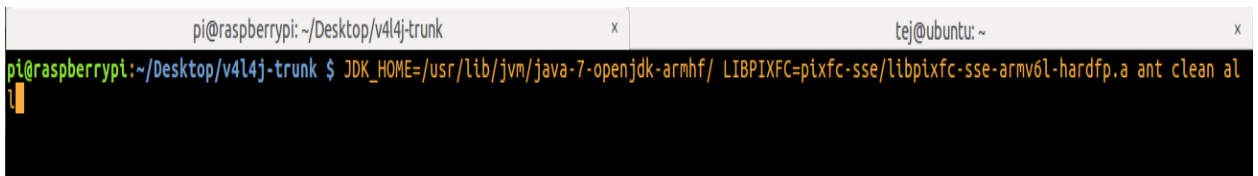
```
JDK_HOME=/usr/lib/jvm/java-7-openjdk-armhf/ LIBPIXFC=pixfc-sse/libpixfc-sse-armv6l-hardfp.a ant clean all
```

**\*On Wheezy beta: (Raspberry Pi)\***

```
JDK_HOME=/usr/lib/jvm/java-7-openjdk-armhf/ LIBPIXFC=pixfc-sse/libpixfc-sse-armv6l-softfp.a ant clean all
```

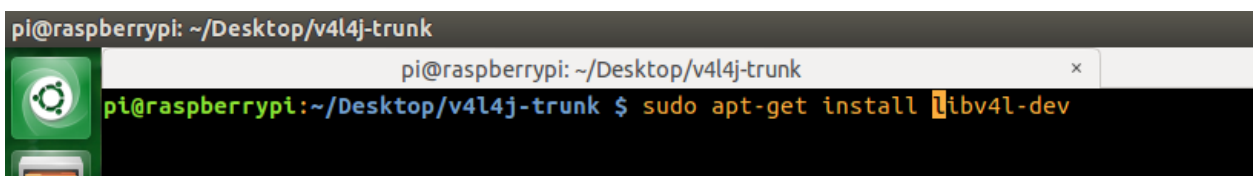
**On other environments setup**

Setup JDK\_HOME environment variable to your JDK path and do  
ant clean all



```
pi@raspberrypi: ~/Desktop/v4l4j-trunk
pi@raspberrypi:~/Desktop/v4l4j-trunk $ JDK_HOME=/usr/lib/jvm/java-7-openjdk-armhf/ LIBPIXFC=pixfc-sse/libpixfc-sse-armv6l-hardfp.a ant clean all
```

5. If you get this error “error: libv4lconvert.h: No such file or directory” , type  
sudo apt-get install libv4l-dev



```
pi@raspberrypi: ~/Desktop/v4l4j-trunk
pi@raspberrypi:~/Desktop/v4l4j-trunk $ sudo apt-get install libv4l-dev
```

And do the build process again.

6. Once the build process is completed

```
compile:
[javac] /home/pi/Desktop/v4l4j-trunk/build.xml:142: warning: 'includeantruntime' was not set, defaulting to build.sysclasspath=last; set to false for repeatable builds
[javac] Compiling 54 source files to /home/pi/Desktop/v4l4j-trunk/classes
[javac] warning: [options] bootstrap class path not set in conjunction with -source 1.6
[javac] Note: Some input files use unchecked or unsafe operations.
[javac] Note: Recompile with -Xlint:unchecked for details.
[javac] 1 warning
[javac] /home/pi/Desktop/v4l4j-trunk/build.xml:148: warning: 'includeantruntime' was not set, defaulting to build.sysclasspath=last; set to false for repeatable builds
[javac] Compiling 3 source files to /home/pi/Desktop/v4l4j-trunk/classes
[javac] warning: [options] bootstrap class path not set in conjunction with -source 1.6
[javac] 1 warning

jar:
[jar] Building jar: /home/pi/Desktop/v4l4j-trunk/v4l4j.jar

all:

BUILD SUCCESSFUL
Total time: 2 minutes 46 seconds
pi@raspberrypi:~/Desktop/v4l4j-trunk $
```

7. Install by running command

sudo ant install

```
pi@raspberrypi:~/Desktop/v4l4j-trunk $ sudo ant install
Buildfile: /home/pi/Desktop/v4l4j-trunk/build.xml

install-libvideo:
[exec] make: Entering directory '/home/pi/Desktop/v4l4j-trunk/libvideo'
[exec] mkdir -p /usr/include
[exec] install -p -m 644 libvideo.h libvideo-err.h libvideo-palettes.h /usr/include
[exec] mkdir -p /usr/lib
[exec] install -m 755 libvideo.so.0 /usr/lib
[exec] cd /usr/lib && ln -f -s libvideo.so.0 libvideo.so
[exec] make: Leaving directory '/home/pi/Desktop/v4l4j-trunk/libvideo'

install-v4l4j:
[mkdir] Created dir: /usr/lib/jni
[copy] Copying 1 file to /usr/lib/jni
[copy] Copying 1 file to /usr/share/java
[copy] Copying 1 file to /usr/share/pixmaps
[copy] Copying 1 file to /usr/share/pixmaps

install:

BUILD SUCCESSFUL
Total time: 9 seconds
pi@raspberrypi:~/Desktop/v4l4j-trunk $
```

8. Finally test the library by running command

ant test-fps

```
pi@raspberrypi:~/Desktop/v4l4j-trunk $ ant test-fps
Buildfile: /home/pi/Desktop/v4l4j-trunk/build.xml

test-fps:
[java] This program will open /dev/video0, capture frames for 10 seconds and print the FPS
[java] [ libvideo.c:68 ] Using libvideo version 0.9-libvideo_r507
[java] Invalid format / no capture format specified, v4l4j will pick the first one
[java] Output image format: RAW (same as input)
[java] Input image format: MJPEG
[java] Starting test capture at 640x480 for 10 seconds
[java] setting frame rate to 15
[java] Couldnt set the frame interval
[java] ===== TEST RESULTS =====
[java]      Frames captured :989
[java]      FPS: 98.9
[java] ===== END RESULTS =====

BUILD SUCCESSFUL
Total time: 22 seconds
pi@raspberrypi:~/Desktop/v4l4j-trunk $
```