6. Playing with Multimedia

서보경

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1. Working with Audio - Playing Music

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1. Working with Audio - Playing Music

- ‘sox’ package
- $sox –h

```
AUDIO FILE FORMATS: 8svx aif aifc aiff aiffc al amb amr-nb amr-wb anb au avr awb
 caf cdda cdr cvs cvsd cvu dat dvms f32 f4 f64 f8 fap flac fssd gsm gsrt hcom ht
k ima ircam la lpc lpc10 lu mat mat4 mat5 maud nist ogg paf prc pvf raw s1 s16 s
2 s24 s3 s32 s4 s8 sb sd2 sds sf sl sln smp snd sndfile sndr sndt sou sox sph sw
 txw u1 u16 u2 u24 u3 u32 u4 u8 ub ul uw vms voc vorbis vox w64 wav wavpcm wv wv
e xa xi
PLAYLIST FORMATS: m3u pls
AUDIO DEVICE DRIVERS: alsa

EFFECTS: allpass band bandpass bandreject bass bend biquad chorus channels compa
nd contrast dcshift deemph delay dither divide+ downsample earwax echo echos equ
alizer fade fir firfit+ flanger gain highpass hilbert input# ladspa loudness low
pass mcompand noiseprof noisered norm oops output# overdrive pad phaser pitch ra
te remix repeat reverb reverse riaa silence sinc spectrogram speed splice stat s
tats stretch swap synth tempo treble tremolo trim upsample vad vol
```

- $play sample3.wav

1. Working with Audio - Playing Music

- ‘vorbis-tools’ package
- $ogg123 sample1.ogg

```
bok_suh@Bok:~/Music$ ogg123 sample1.ogg

Audio Device:   PulseAudio Output

Playing: sample1.ogg
Ogg Vorbis stream: 2 channel, 44100 Hz
Encoder: Lavc58.117.101 libvorbis
Time: 00:08.74 [03:17.99] of 03:26.73  (126.7 kbps)  Output Buffer  88.9%
```

- ‘Ctrl+c’ (다음 곡으로 스킵)
- ‘Ctrl+c’ 두 번 (종료)

1. Working with Audio - Playing Music

- 'mpg321' package
- $mpg321 sample1.mp3

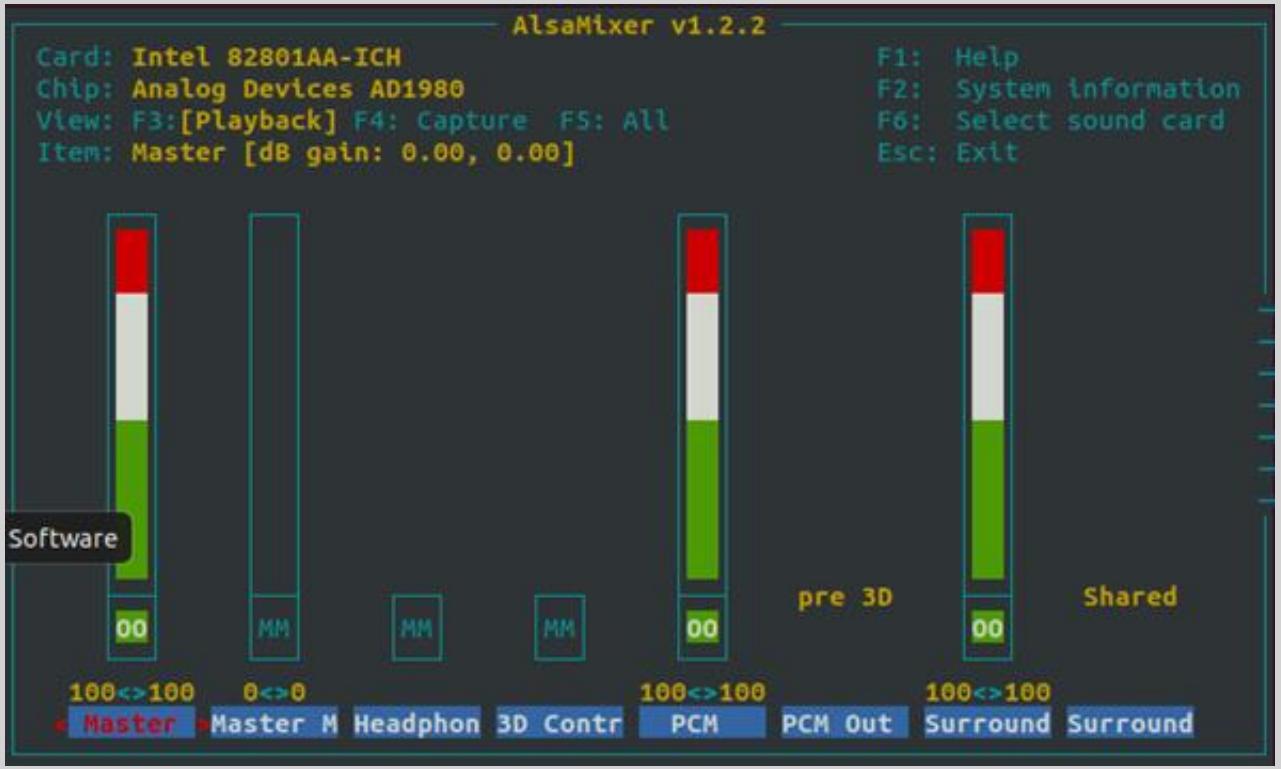
```
bok_suh@Bok:~/Music$ mpg321 sample1.mp3
High Performance MPEG 1.0/2.0/2.5 Audio Player for Layer 1, 2, and 3.
Version 0.3.2-1 (2012/03/25). Written and copyrights by Joe Drew,
now maintained by Nanakos Chrysostomos and others.
Uses code from various people. See 'README' for more!
THIS SOFTWARE COMES WITH ABSOLUTELY NO WARRANTY! USE AT YOUR OWN RISK!

Playing MPEG stream from sample1.mp3 ...
MPEG 1.0 layer III, 128 kbit/s, 44100 Hz joint-stereo
```

- $mpg321 –z *.mp3 (pseudo-random order)
- $mpg321 –Z *.mp3 (-z와 같으나 무한 반복)

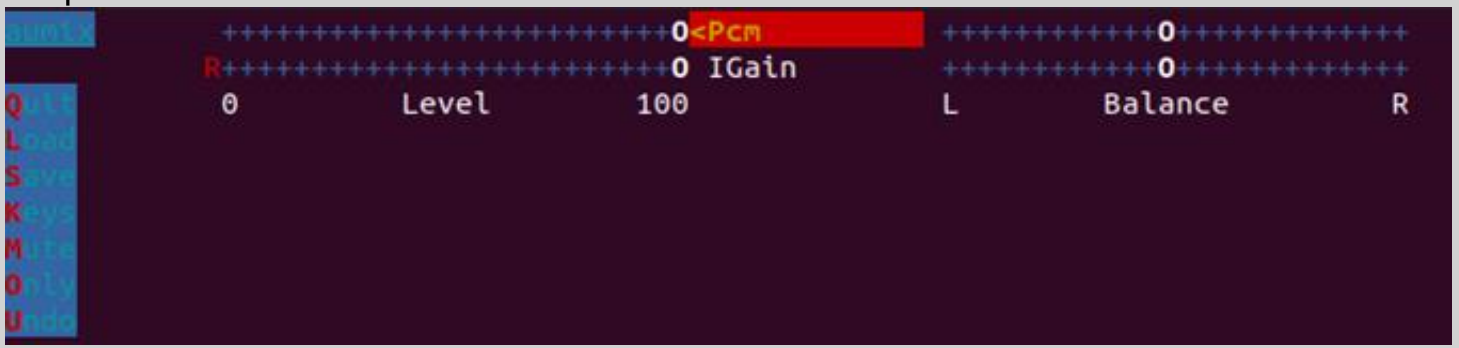
1. Working with Audio
- Adjusting Audio Levels

- ALSA (Advanced Linux Sound Architecture)
- OSS (OpenSourceSoundSystem) : 구식
- $alsamixer



1. Working with Audio - Adjusting Audio Levels

- ‘aumix’ package
- $aumix



- $aumix -q

```
bok_suh@Bok:~$ aumix -q
pcm 100, 100
igain 100, 100, R
```

1. Working with Audio - Encoding Music

- oggenc

```
bok_suh@Bok:~/Music$ oggenc sample3.wav -o NewSong.ogg \
> -a Bernstein -G Classical \
> -d 06/15/1972 -t "Simple Song" \
> -l "Bernsteins Mass" \
> -c info="From Kennedy Center"
Skipping chunk of type "LIST", length 26
Opening with wav module: WAV file reader
Encoding "sample3.wav" to
         "NewSong.ogg"
at quality 3.00
        [ 99.6%] [ 0m00s remaining] |

Done encoding file "NewSong.ogg"

        File length:  4m 05.0s
        Elapsed time: 0m 02.9s
        Rate:         83.9669
        Average bitrate: 107.2 kb/s
```

```
bok_suh@Bok:~/Music$ ogginfo NewSong.ogg
Processing file "NewSong.ogg"...

New logical stream (#1, serial: 51ac3dae): type vorbis
Vorbis headers parsed for stream 1, information follows...
Version: 0
Vendor: Xiph.Org libVorbis I 20180316 (Now 100% fewer shells)
Channels: 2
Rate: 44100

Nominal bitrate: 112.000000 kb/s
Upper bitrate not set
Lower bitrate not set
User comments section follows...
        info=From Kennedy Center
        title=Simple Song
        artist=Bernstein
        genre=Classical
        date=06/15/1972
        album=Bernsteins Mass
Vorbis stream 1:
        Total data length: 3285010 bytes
        Playback length: 4m:05.237s
        Average bitrate: 107.161729 kb/s
Logical stream 1 ended
```

1. Working with Audio - Encoding Music

- ‘flac’ package
- $flac sample3.wav

```
bok_suh@Bok:~/Music$ flac -f sample3.wav

flac 1.3.3
Copyright (C) 2000-2009  Josh Coalson, 2011-2016  Xiph.Org Foundation
flac comes with ABSOLUTELY NO WARRANTY.  This is free software, and you are
welcome to redistribute it under certain conditions.  Type `flac' for details.

sample3.wav: WARNING: skipping unknown chunk 'LIST' (use --keep-foreign-metadata to
keep)
sample3.wav: wrote 26895619 bytes, ratio=0.622
```

1. Working with Audio - Encoding Music

- ‘lame’ package
- $lame sample3.wav

```
bok_suh@Bok:~/Music$ lame sample3.wav
LAME 3.100 64bits (http://lame.sf.net)
Using polyphase lowpass filter, transition band: 16538 Hz - 17071 Hz
Encoding sample3.wav to sample3.mp3
Encoding as 44.1 kHz j-stereo MPEG-1 Layer III (11x) 128 kbps qval=3
    Frame          |  CPU time/estim | REAL time/estim | play/CPU |    ETA
  9389/9389  (100%)|    0:03/    0:03|    0:03/    0:03|   68.719x|    0:00
------------------------------------------------------------------------------
   kbps        LR    MS  %     long switch short %
  128.0        2.4  97.6        98.7   0.8   0.5
Writing LAME Tag...done
ReplayGain: -1.9dB
```

1. Working with Audio - Encoding Music

```
bok_suh@Bok:~/Music$ lame sample3.wav NewSong.mp3 \
> --ta Bernstein --tg Classical \
> --ty 1972 --tt "Simple Song" \
> --tl "Bernsteins Mass" \
> --tc "From Kennedy Center"
LAME 3.100 64bits (http://lame.sf.net)
Using polyphase lowpass filter, transition band: 16538 Hz - 17071 Hz
Encoding sample3.wav to NewSong.mp3
Encoding as 44.1 kHz j-stereo MPEG-1 Layer III (11x) 128 kbps qval=3
     Frame          |  CPU time/estim | REAL time/estim | play/CPU |    ETA
  9389/9389  (100%)|    0:03/    0:03|    0:03/    0:03|   69.121x|    0:00
------------------------------------------------------------------------------
   kbps        LR    MS  %     long switch short %
  128.0        2.4  97.6        98.7   0.8   0.5
Writing LAME Tag...done
ReplayGain: -1.9dB
```

```
bok_suh@Bok:~/Music$ mpg123 NewSong.mp3
High Performance MPEG 1.0/2.0/2.5 Audio Player for Layer 1, 2, and 3.
Version 0.3.2-1 (2012/03/25). Written and copyrights by Joe Drew,
now maintained by Nanakos Chrysostomos and others.
Uses code from various people. See 'README' for more!
THIS SOFTWARE COMES WITH ABSOLUTELY NO WARRANTY! USE AT YOUR OWN RISK!
Title   : Simple Song                 Artist : Bernstein
Album   : Bernsteins Mass             Year   : 1972
Comment : From Kennedy Center         Genre  : Classical

Playing MPEG stream from NewSong.mp3 ...
MPEG 1.0 layer III, 128 kbit/s, 44100 Hz joint-stereo
```

1. Working with Audio - Streaming Music

- 'icecast2', 'ices2' packages

1. 비밀번호 수정하기

```
bok_suh@Bok:~$ sudo vi /etc/icecast2/icecast.xml
```

```
<authentication>
    <!-- Sources log in with username 'source' -->
    <source-password>hackme</source-password>
    <!-- Relays log in with username 'relay' -->
    <relay-password>hackme</relay-password>

    <!-- Admin logs in with the username given below -->
    <admin-user>admin</admin-user>
    <admin-password>hackme</admin-password>
</authentication>
```

1. ENABLE = true

```
bok_suh@Bok:~$ sudo vi /etc/default/icecast2
```

```
# Defaults for icecast2 initscript
# sourced by /etc/init.d/icecast2
# installed at /etc/default/icecast2 by the maintainer scripts

#
# This is a POSIX shell fragment
#

# Full path to the server configuration file
CONFIGFILE="/etc/icecast2/icecast.xml"

# Name or ID of the user and group the daemon should run under
USERID=icecast2
GROUPID=icecast
```

1. Working with Audio
- Streaming Music

3. 서버 시작하기

```
bok_suh@Bok:~$ sudo /etc/init.d/icecast2 start
Starting icecast2 (via systemctl): icecast2.service.
bok_suh@Bok:~$ sudo netstat -topnavel | grep 8000
tcp        0      0 0.0.0.0:8000            0.0.0.0:*               LISTEN      126
       79443      416455/icecast2      off (0.00/0/0)
```

4. 디렉토리 만들기

```
bok_suh@Bok:~$ sudo mkdir /var/log/ices
bok_suh@Bok:~$ sudo mkdir /etc/ices2
bok_suh@Bok:~$ sudo mkdir /etc/ices2/music
```

5. 플레이리스트 만들기

```
bok_suh@Bok:~$ find /home/bok_suh/Music -name *.ogg > playlist.txt
```

6. 복사 후 저장하기

```
bok_suh@Bok:~$ sudo cp playlist.txt /etc/ices2
```

1. Working with Audio - Streaming Music

7. ices-playlist.xml 수정하기

```
<input>
    <module>playlist</module>
    <param name="type">basic</param>
    <param name="file">/etc/ices2/playlist.txt</param>
    <!-- random play -->
    <param name="random">0</param>
    <!-- if the playlist get updated that start at the beginning -->
    <param name="restart-after-reread">0</param>
    <!-- if set to 1 , plays once through, then exits. -->
    <param name="once">1</param>
```

```
<instance>
    <!-- Server details:
        You define hostname and port for the server here, along with
        the source password and mountpoint.  -->
    <hostname>localhost</hostname>
    <port>8000</port>
    <password>hackme</password>
    <mount>/mymusic.ogg</mount>
```

8. 실행하기

```
bok_suh@Bok:~$ ogg123 http://localhost:8000/example1.ogg

Audio Device:   PulseAudio Output


Playing: http://localhost:8000/example1.ogg
Ogg Vorbis stream: 2 channel, 44100 Hz
Info: From Kennedy Center
Title: Simple Song
Artist: Bernstein
Genre: Classical
Date: 06/15/1972
Album: Bernsteins Mass

Ogg Vorbis stream: 2 channel, 44100 Hz
Encoder: Lavc58.117.101 libvorbis
Time: 00:07.38  ( 50.3 kbps)  Input Buffer  99.2%   Output Buffer  93.7%
```

1. Working with Audio
- Streaming Music

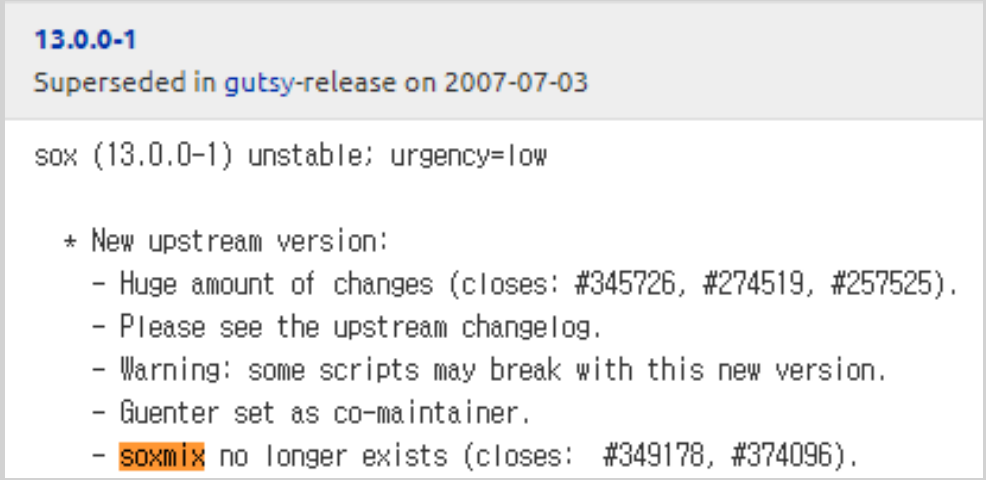
9. 종료하기

```
bok_suh@Bok:~$ sudo /etc/init.d/icecast2 stop
Stopping icecast2 (via systemctl): icecast2.service.
```

1. Working with Audio
- Converting Audio Files

- $sox head.wav tail.wav output.wav (합치기)

- ~~$soxmix sound1.wav sound2.wav ouput.wav (믹스)~~



13.0.0-1

Superseded in gutsy-release on 2007-07-03

```
sox (13.0.0-1) unstable; urgency=low

  * New upstream version:
    - Huge amount of changes (closes: #345726, #274519, #257525).
    - Please see the upstream changelog.
    - Warning: some scripts may break with this new version.
    - Guenter set as co-maintainer.
    - soxmix no longer exists (closes:  #349178, #374096).
```

- $sox sound1.wav ouput.wav trim 4 (지우기)

2. Transforming Images
- Getting Information about Images

- 사진 파일 정보 보기

```
bok_suh@Bok:~/Pictures$ identify image.png
image.png PNG 1200x628 1200x628+0+0 8-bit sRGB 677031B 0.000u 0:00.000
bok_suh@Bok:~/Pictures$ identify -verbose image.png | less
```

2. Transforming Images
- Converting Images

- 포멧 바꾸기

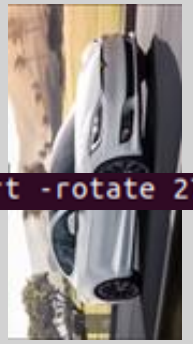
```
bok_suh@Bok:~/Pictures$ convert image.jpg image.png
```

- 사이즈 바꾸기

```
bok_suh@Bok:~/Pictures$ convert -sample 50%x50% image.jpg image-half.jpg
bok_suh@Bok:~/Pictures$ convert -resize 1024x768 image.jpg image-sm.jpg
```

- 회전하기

```
bok_suh@Bok:~/Pictures$ convert -rotate 270 image.jpg image-final.jpg
```



- 텍스트 넣기

```
bok_suh@Bok:~/Pictures$ convert -fill black -pointsize 60 -font helvetica -draw 'tex
t 10,80 "Copyright NegusNet Inc."' image.jpg image-cp.jpg
```

2. Transforming Images
- Converting Images

- 썸네일 만들기

```
bok_suh@Bok:~/Pictures$ convert -thumbnail 300x300 image.jpg a-a.png
bok_suh@Bok:~/Pictures$ convert -thumbnail 300x300 -border 8 image.jpg a-b.png
bok_suh@Bok:~/Pictures$ convert -thumbnail 300x300 -border 8 -rotate 8 image.jpg a-c.png
```

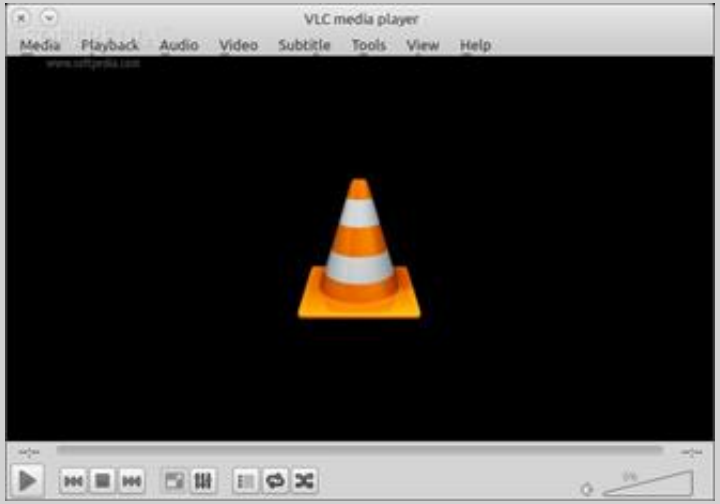
2. Transforming Images
- Converting Images in Batches

- 디렉토리 안의 이미지 전체 수정

```
bok_suh@Bok:~/Pictures$ for pic in '*.png'
> do
>     echo "converting $pic"
>     convert -resize 1024x768 $pic small/sm-$pic
> done
converting *.png
```

3. Playing with Video - Playing Video Files

- Totem
- Mplayer
- Xine
- VLC



3. Playing with Video

- Installing Video Software
- Starting the DVD player

- gstreamer1.0-plugins-good
- libdvdcss
  - $sudo apt-get install libdvd-pkg
  - $sudo dpkg-reconfigure libdvd-pkg

- 실행하기
- $mplayer dvd://

감사합니다.