SoX Audio swiss knife

CONCEPTS

Command shape: sox [global] [format opts] in... [format opts] out [effect args...]. Effects run left to right on the way to the output file.

Input file(s) read, decoded
↓ combine
Effects chain trim, gain, rate...
↓ encode
Output file type from extension

Format options (-r -c -b -t) apply to the file name that follows them; the output extension picks the type. Effects go after the output name.

INSPECT AND PLAY

soxi *<file>*
Show format, rate, channels, duration

soxi -D *<file>*
Duration in seconds

soxi -r *<file>*
Sample rate only

soxi -c *<file>*
Channel count only

play *<file>*
Play through the default device

play *<file>* **trim 30**
Play starting at 30 seconds

sox *<in>* **-n stat**
Level statistics, no output

sox *<in>* **-n stats**
Peak, RMS and crest summary

RECORD

rec *<file>*
Record from default input until Ctrl+C

rec -c 1 -r 16k *<file>*
Record mono 16 kHz

rec *<file>* **trim 0 60**
Record for 60 seconds

CONVERT AND FORMAT

sox *<in.wav> <out.flac>*
Convert, type from extension

CONVERT AND FORMAT (cont.)

sox *<in>* **-r 44100** *<out>*
Set output sample rate

sox *<in>* **-c 1** *<out>*
Set output channel count

sox *<in>* **-b 16** *<out>*
Set output bit depth

sox -t raw -r 48k -e signed -b 16 -c 2 *<in.raw> <out.wav>*
Wrap raw PCM in a header

TRIM, JOIN AND MIX

sox *<in> <out>* **trim** *<start> <len>*
Cut a piece by start and length

sox *<in> <out>* **trim** *<start>* **=***<end>*
Cut up to an absolute position

sox *<in> <out>* **trim 0 -5**
Drop the last 5 seconds

sox *<a> <b> <out>*
Concatenate files

sox -m *<a> <b> <out>*
Mix files on top of each other

sox -M *<l.wav> <r.wav> <out>*
Merge mono files into channels

sox *<in> <out>* **remix 1**
Keep only the left channel

sox *<in> <out>* **remix 1,2**
Mix both channels to mono

sox *<in> <out>* **pad 2 0**
Add 2 s silence at the start

sox *<in> <out>* **channels 2**
Convert to stereo

VOLUME AND FADES

sox *<in> <out>* **norm**
Normalize peak to 0 dBFS

sox *<in> <out>* **norm -3**
Normalize peak to -3 dBFS

sox *<in> <out>* **gain** *<dB>*
Change level by dB

sox *<in> <out>* **vol** *<factor>*
Multiply amplitude by a factor

sox *<in> <out>* **fade** *<in-s>* **0** *<out-s>*
Fade in and out

VOLUME AND FADES (cont.)

sox *<in> <out>* **fade t 3**
Linear 3 s fade-in only

RATE, SPEED AND PITCH

sox *<in> <out>* **rate** *<hz>*
Resample to a rate

sox *<in> <out>* **rate -v 48k**
Resample, very high quality

sox *<in> <out>* **speed** *<factor>*
Change speed and pitch together

sox *<in> <out>* **tempo** *<factor>*
Change speed, keep the pitch

sox *<in> <out>* **pitch** *<cents>*
Shift pitch, keep the speed

FILTERS AND CLEAN-UP

sox *<in> <out>* **highpass** *<hz>*
Cut low rumble

sox *<in> <out>* **lowpass** *<hz>*
Cut high hiss

sox *<in> <out>* **bass** *<dB>*
Boost or cut the lows

sox *<in> <out>* **treble** *<dB>*
Boost or cut the highs

sox *<in> <out>* **silence 1 0.1 1% -1 0.5 1%**
Trim silence at start and end

ANALYSE AND GENERATE

sox *<in>* **-n spectrogram**
Write spectrogram.png

sox *<in>* **-n spectrogram -o** *<out.png>*
Spectrogram to a chosen PNG

sox -n *<out>* **synth 3 sine 440**
Generate a 3 s sine tone

RECIPES

Podcast clean-up and normalize

```
sox raw.wav out.wav highpass 80 \
  silence 1 0.1 1% -1 0.5 1% \
  gain -n -3
```