# 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

## INSPECT AND PLAY

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

**soxi -D** *<file>*
Duration in seconds

**soxi -r** *<file>*
Sample rate only

**play** *<file>*
Play through the default device

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

## 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

**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

## 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** *<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

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

## RATE, SPEED AND PITCH

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

**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

## ANALYSE AND GENERATE

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