

How to measure the latency

- `simple-mixer/public/120bpm-cowbells.mp3`
- Open the sound source, play back with record
- mute (vol. 0) the source and export recorded track
- mute the recorded track and export the source track
- use Audacity to show waveform of the two exported files

Export track by track

KG's Simple Mixer for stem files with speed/pitch control

(language) JP (AudioWorklet) 😊

Browse... 120bpm-cowbells.mp3 Clear

Time (Slider position: 000.0)
A: 000.0- B: 010.2 song length: 010.2

set A set B reset

Player Controls

Master Gain (075)

Track Gain(s)
120bpm-cowbells.mp3 (000)

recordedTrack (100)

Version: 20210727-00 [Guide/Update](#)
Speed/pitch control by modified [SoundTouchJs](#)

Opening mix_1627460040585.wav

You have chosen to open:

mix_1627460040585.wav
which is: WAV オーディオ (2.1 MB)
from: blob:

What should Firefox do with this file?

☐ Open with ビデオ (default)

☒ Save File

☐ Do this automatically for files like this from now on.

Cancel OK

KG's Simple Mixer for stem files with speed/pitch control

(language) JP (AudioWorklet) 😊

Browse... 120bpm-cowbells.mp3 Clear

Time (Slider position: 000.0)
A: 000.0- B: 010.2 song length: 010.2

set A set B reset

Player Controls

Master Gain (075)

Track Gain(s)
120bpm-cowbells.mp3 (100)

recordedTrack (000)

Version: 20210727-00 [Guide/Update](#)
Speed/pitch control by modified [SoundTouchJs](#)

Opening mix_1627460118589.wav

You have chosen to open:

mix_1627460118589.wav
which is: WAV オーディオ (2.1 MB)
from: blob:

What should Firefox do with this file?

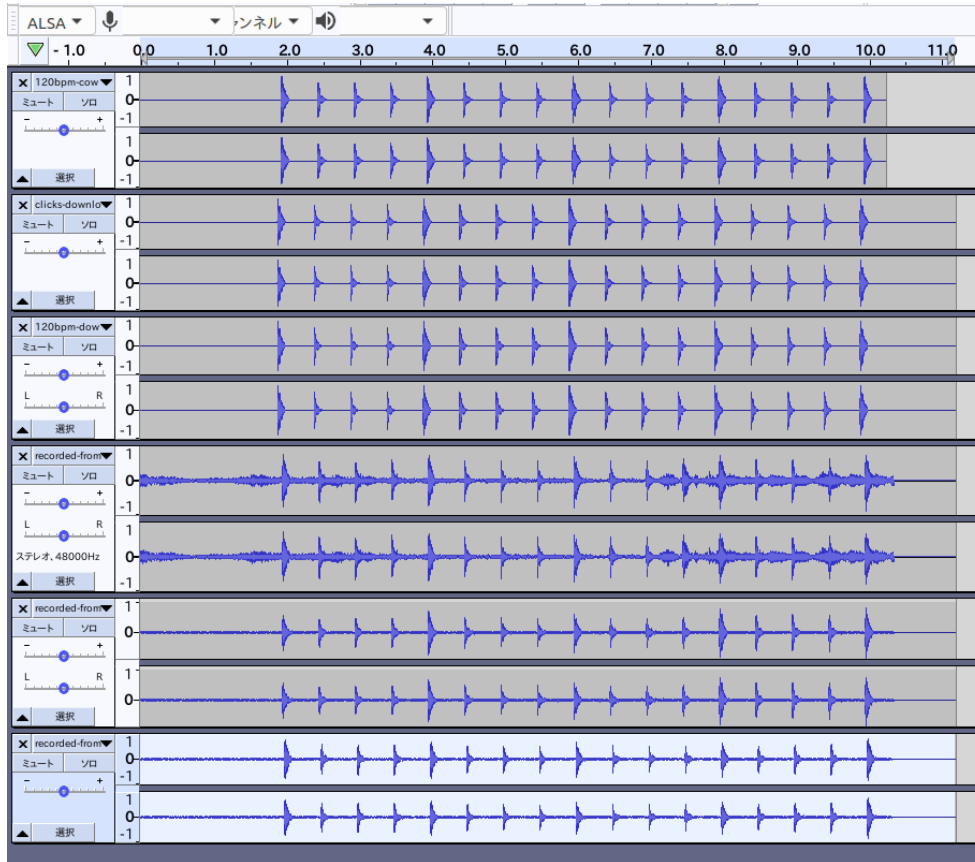
☐ Open with ビデオ (default)

☒ Save File

☐ Do this automatically for files like this from now on.

Cancel OK

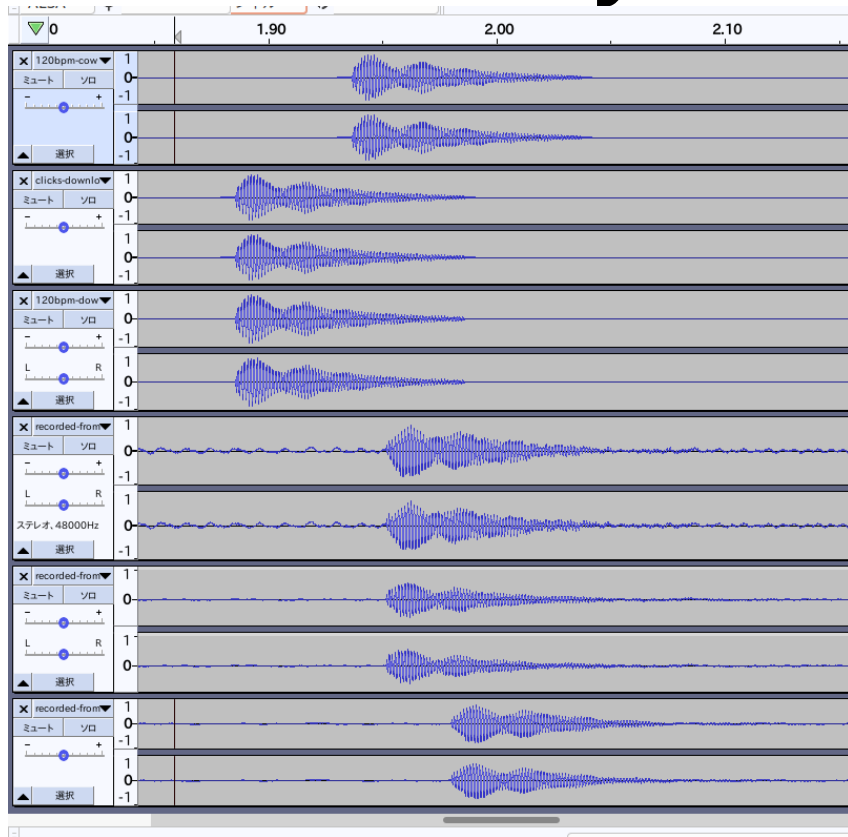
Latency on Ubuntu (overview)



1. 120bpm cowbell count (source)
2. play back (Firefox) exported file
3. play back (Chrome) exported file
4. recorded from internal audio (Firefox)
5. recorded from built-in mic (Firefox)
6. recorded from built-in mic (Chrome)

- Mozilla Firefox for Ubuntu 90.0
- Google Chrome 92.0.4515.107
- Note: Chrome does not support recording of internal audio

Latency on Ubuntu (details)



July 28, 2021

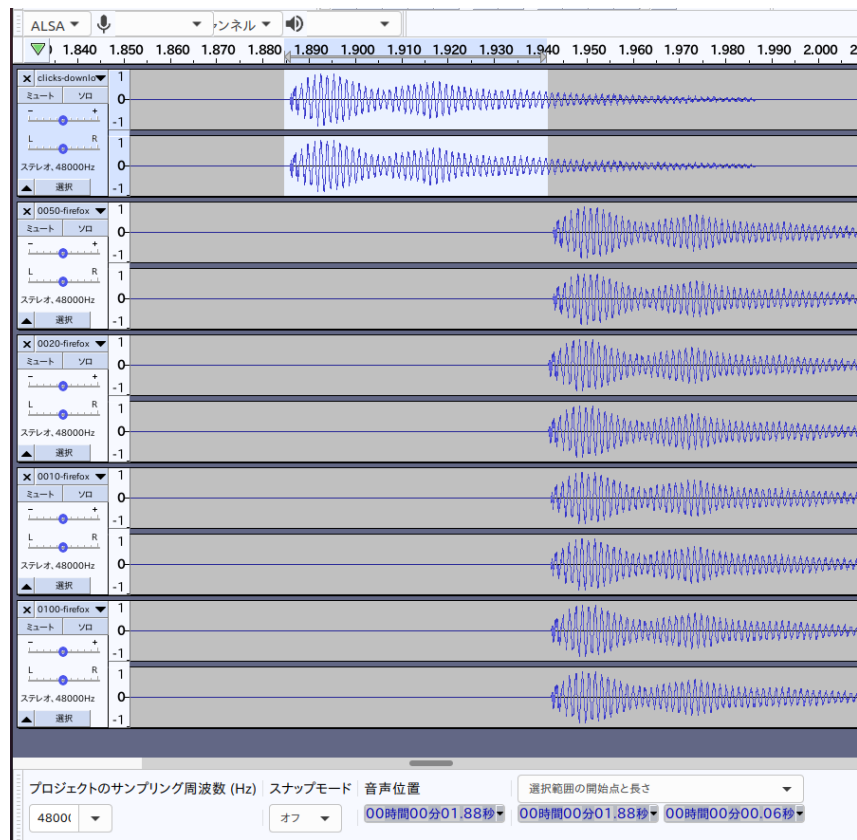
1. 120bpm cowbell count (source)
 2. play back (Firefox) exported file
 3. play back (Chrome) exported file
 4. recorded from internal audio (Firefox)
 5. recorded from built-in mic (Firefox)
 6. recorded from built-in mic (Chrome)
- track 2/3 is earlier than track 1
 - possibly a bug (to be fixed)
 - track 2 and 3 are same (F and C)
 - track 4 and 5 are same in terms of time
 - internal audio and mic input
 - track 6 (mic input Chrome) is later than track 5
 - browser dependent?
 - track 5 is later than track 4 by 0.06 to 0.07 seconds (60 to 70 milliseconds)
 - latency of track 6 is about 0.1 sec

this.recLatency affects?

```
const constraints = {  
  audio: {  
    autoGainControl: false, // default true  
    // channelCount: 2, // device dependent  
    echoCancellation: false, // default true  
    latency: 0.1, // previous results  
    noiseSuppression: false, // default true  
    sampleRate: 44100,  
    sampleSize: 16, // 16 bits?  
    // volume: // deprecated  
  },  
};  
//  
navigator.mediaDevices.getUserMedia(constraints)
```

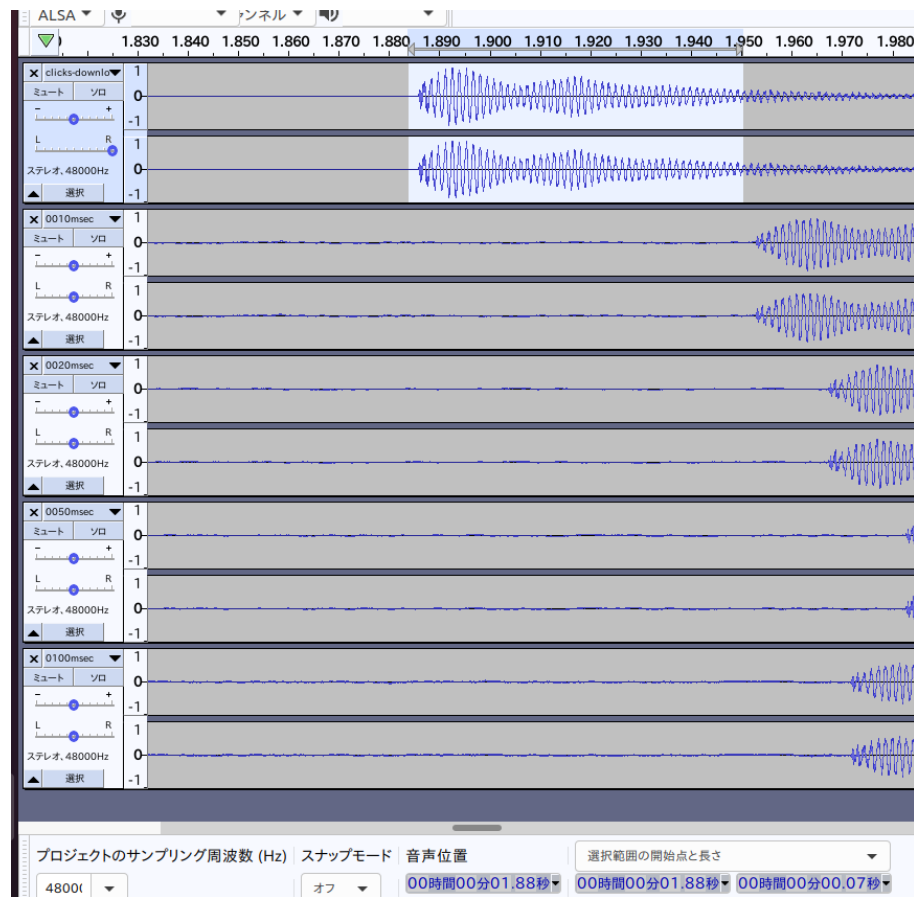
Experiments with
0.1, 0.05, 0.02, 0.01 etc
→ next slide

Result is NO (Firefox)



1. click track (exported)
 1. selected range – 60ms
2. constraints – latency: 0.1
3. latency: 0.05
4. latency: 0.02
5. latency: 0.01

Random (Chrome)



1. click track
2. latency: 0.01 (10 msec) – 67 msec
3. latency: 0.02 (20 msec)
4. latency: 0.05 – worst
5. latency: 0.10 – better than 0.05 (why?)