Using Audio to Communicate Heritage



Overview

- Introduction
- Sound, compression and perception
- Recording sound
- Editing
- Processing
- Archiving
- Sharing
- Resources

Introduction

- Sound is important in its own
- Heritage sound projects
- How can we use sound?
 - Sound scape
 - Background
 - Narrative
 - Interactive
- What is a podcast?
- Using sound with Video





The Scotland's Sounds network welcomes people from museums, libraries, community organisations, archives and private collections who want to work collaboratively to improve care and access to Scotland's heritage recorded sounds.





West Highland Museum's Podcast

Beyond the Cattle Grid - Blarmachfoldach

JAINE 91 2020 WEST HIGHLAND MUSEUM SEASON 1 EPISODE 2



LISTEN ON

3

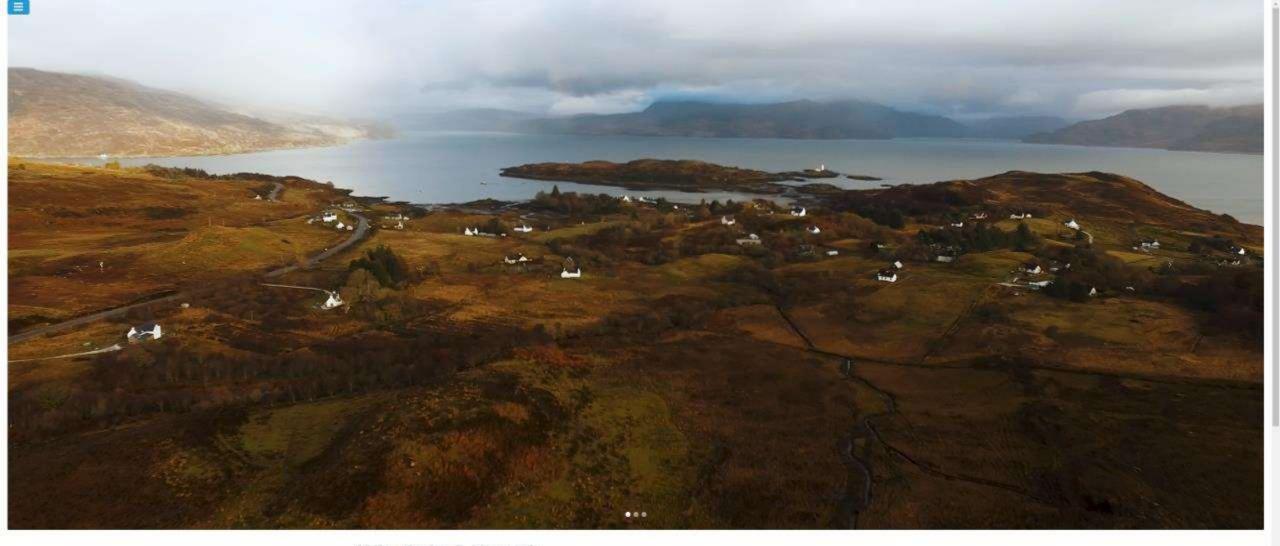
SHARE EPISODE

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SHOW NOTES

Listen to Dr Chris Robinson take you Beyond the Cattle Grid at the Blarmachfoldach settlement, nestled in the hills above Fort William. In this second episode meet the locals and hear about their escapades including a local gold rush!

All content is 2020 West Highland Mulmourny Policians, interested in postcasting? Learn how you can cost a postcast with Biographical Policies housing by Ruccipeust.



What's In A Name?

Gaelic Place Names with An Crùbh Community Hub

The Sleat peninsula, at the southern tip of Skye, has a rich Gaelic heritage which shaped local place names. However, many of Sleat's traditional names have never been recorded on official maps – most of which were created by map-makers who came from outside Skye and were not native Gaelic speakers.

Place names form a vital way of understanding how a landscape has evolved over time, and the cultures of the communities which have lived in it. During the late twentieth and early twenty-first centuries, Sleat (like many other parts of Skye) has seen major changes, potentially disrupting the





Gaelic Place Names with An Crubh Community Hub

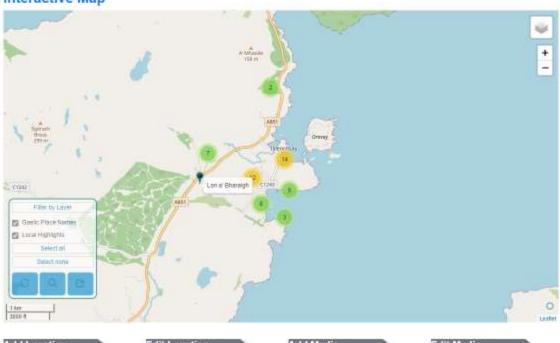
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Place names form a vital way of understanding how a landscape has evolved over time, and the cultures of the communities which have aved in it. During the late twentieth and early twenty-first centuries, Sleat (like many other parts of Skye) has seen major changes, potentially disrupting the passing on of oral traditions, including knowledge about historic place names. In recent years, local volunteers have worked on a project to record old place names and stories from the north-east end of Sleat, in the area around the An Crubh cafe and community hub, near Isle Omsay.

Explore the interactive map to discover the history and place names of the . north-eastern part of Sleet, and add your own stories and pictures about the area's past.



Interactive Map



Add Location Search Edit Location

Add Media

Edit Media

Home > About us > Working with others > Scotland's Sounds

Scotland's Sounds network

Working with others

National Library Foundation

Local networks

National library bodies

Newsplan Scotland

Rare Books in Scotland

Scotland's Sounds

The Scotland's Sounds network aims to improve the care of and the access to Scotland's heritage recorded sounds.

Since 2009, the National Library has been coordinating the development of the network, with sound-related projects increasing year on year.

Individuals and organisations holding sound recordings in or about Scotland are now working together as part of the network. Visit the Scotland's Sounds website.

Shared responsibility and vision

The Scotland's Sounds stakeholder network looks to strengthen ties between organisations caring for sound collections and share responsibility for their sustainable access for the benefit of the public. It also aims to proactively increase engagement with Scotland's sound heritage.

Our vision is:

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SOUNDS

PRICIPES AND PROFITTS

To engage a Anthonic of processing and providing who have a shorted offering in processing and profitting further a sub-in-control offering in processing and profitting further a sub-in-control offering in processing and profitting further a sub-in-control offering in processing and profitting further and a sub-in-control offering in a sub-in-control offering in our discussions and a sub-in-control out of the sub-in-control out

Read the principles and priorities (PDF)
[T Mil. II pages]

To engage a network of organisations and individuals who have a shared interest in preserving and protecting Scotland's audio heritage. Together we will share knowledge about sound archives and aim to raise the profile of our rich and varied sound collections held across the communities of Scotland.

Key principles and priorities

Between 2020 and 2025, we will focus on the following key principles and priorities to achieve our vision.

Principle 1: Sound recordings are invaluable and fragile. They need to be preserved and protected

Principle 2: Sound is an engaging format. We must make our sounds accessible and available as widely as possible.

Principle 3: Our communities and collections will benefit by collaborating across a distributed collection network.

We will facus on the following priorities

- Preserves
- Connect
- Collect.
- Find

Read more in the principles and priorities (PDF) (1 MB; 8 pages).

Sound projects

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Julie Footis and Chris Wight view previously Artists in Residence at Total an Disakharis/Kist a Rishes

This website contains oral recordings made in Scotland and further afield, from the 1930s onwards. The number of recordings online is now approaching 50,000.

The items you can listen to include stories, songs, music, poetry and factual information.

Visit our Facebook and Twitter pages [1]



I'm searching for	About			with audio in
Anything ~	Enter search text		Gol	Any Language →
	Results Per Page	Sort by:		
	[10 v]	Track id	~	reversé order [_]

New

Welcome to the updated Tobar an Dualichais/Rist o Riches web platform. We have created this interim site to replace the original site which had become fragite and was based on technology which is no longer supported. The University of Edinburgh has provided funding for EDINA to develop this site to ensure that access to content can be maintained going forward.

If has not been possible to replicate all of the complex and bespoke functionality of the previous site, so users may find there are some changes.

Almost 50,000 recordings are now available on the interim website.

The partners in Tobar an Dualchais/Kist o Riches are currently working on a project to explore options for the future. To help us assess partners and users' needs, we would be grateful if you could complete this short online survey. https://edin.ac/2w9AAv8

Featured Item

Rachel Chiesley, Lady Grange, is remembered largely for her kidnapping and exile to St Kilda in the 1730s.

Rachel was born in 1679, the daughter of John Chiesley of Dahy who was hanged for murder when she was only ten years old. She married James Erisine (Lord Grange) sometime around 1707 and had nine children with him. Grange was an advocate, judge and politician, and was also the britther of the Earl of Mar who had led the unsuccessful 1716 Jacobite uprising and had subsequently fled to France. The couple separated in 1730, but tensions between them remained high. She was known to have a flery temper and when she threatehed to reveal evidence that her husband was plotting against the Hanovertain government, he look the threat very sensusly. He made a plan with some friends to have Lady Grange kidnapped and taken to a remote location to safeguard him against her accusations.

Once their plan was finalised, Lady Grange was violently removed from her lodgings in Edinburgh in April 1732 and taken to various places in the Highlands before arming in the Monach Isles, which lie 5 miles off the west coast of North Urst. She stayed there with the tacksman and his wife for two years before being transported to St Kilda, which lies 40 miles to the west of North Urst. She was given very basic lodgings there, in stark contrast to the comforts she had been used to in Edinburgh.

She managed to smuggle two letters off the island outlining her situation, one of which reached a friend of hers in Edinburgh in December 1740. A vessel with twenty men was dispatched in February 1741 to rescue her but she had already been removed from the island before it arrived.

She was subsequently moved around different locations in the Highlands before arriving in Waternish on Skye in 1742, where she stayed with Rory MacNetl at Trumpan. She died there in May 1745 and was buried in the local churchyard.

Lady Grange's fate has been commemorated over the centuries in poems, novels, plays and songs. She is depicted as the heroine in these works and this may be viewed as a titting revenge on her husband.

In this recording Nan MacGinnon from Vatersay sings: Gur Mise Tha Fo Mhi-ghean 's Mi Leam Fhin air a' Chnoc', which she says was composed by Lady Grange when she was abandoned on St Kilda.

Listen to the song.



British Library Sounds



Am Baile Highland History and Culture



SCRAN images, audio and video resources

ORALHISTORY



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WOMES SEARCH

Oral History Society



Oral History Society: advice



Scotland's Urban Past:
oral history
how-to guide
booklet and video



Oral History Society: training

Scotland's Urban Past example oral history projects:

Old Oban Project

Lerwick Observatory



Language Landscape: mapping spoken-language diversity



OurStory Scotland: LGBT+ histories



BSL ORAL HISTORIES

These BSL Oral History interviews were recorded as part of History of Place, researching 800 years of deaf and disability history relating to 8 buildings



History of Place: Deaf and disabled histories



Colourful Heritage invites you to explore the story of South Asian and Muslim heritage in Scotland. Visit our GlaswegAsians exhibition and explore our online videos and digital timeline detailing the fascinating journey of these unique group of Scottish Asians and Muslims.

Colourful Heritage: South Asian + Muslim heritage in Scotland

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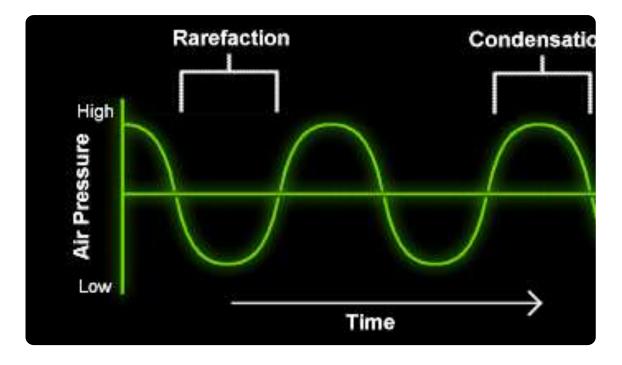


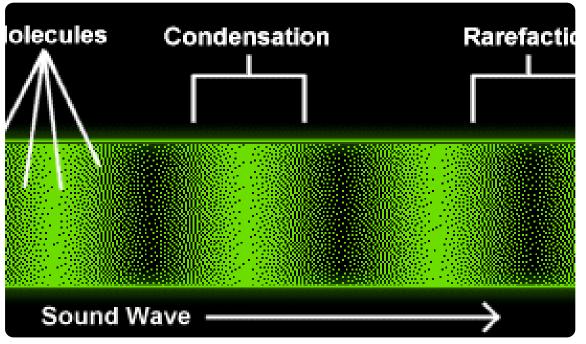
The Nature of Sound

- Conversion of energy into vibrations in the air (or some other elastic medium)
- Most sound sources vibrate in complex ways leading to sounds with components at several different frequencies
- Frequency spectrum relative amplitudes of the frequency components
- Range of human hearing: roughly 20Hz– 20kHz, falling off with age

Physics of Sound

The sounds we hear are the result of pressure waves in the air.





Perception of Sound

- Limited range of frequencies: 20Hz to 20kHz
- Sound direction
 - Estimated from:
 - Relative volume and phase in left/right ears
 - Perceptual mechanisms
 - e.g. close no echo, distant echo
- Perceptual mistakes (sound illusions)
 - e.g. louder sounds of same (low) frequency perceived as lower pitch
 - McGurk effect visible mouth shapes change perceived vocal sounds.

Waveforms



Sounds change over time

e.g. musical note has attack and decay, speech changes constantly



Frequency spectrum alters as sound changes



Waveform is a plot of amplitude against time

Provides a graphical view of characteristics of a changing sound

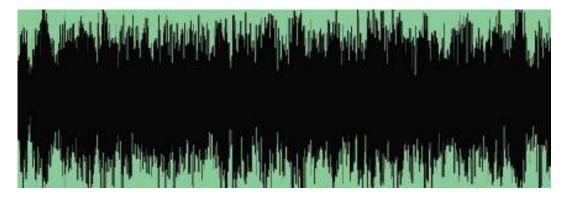
Can identify syllables of speech, rhythm of music, quiet and loud passages, etc

Waveforms and Sounds





Waves Breaking





Didgereedoo

Sampling rate

- What is the highest frequency we can reproduce from a sampled signal?
- Answer given by Nyquist & Shannon:
 - Sampling rate must be twice the frequency of highest frequency signal we wish to reproduce.
- This says 2 things
 - We loose (or alias) frequencies above half the sampling rate.
 - We can reconstruct signals below that rate exactly
 - Given sufficiently good hardware.

Application dependent sampling

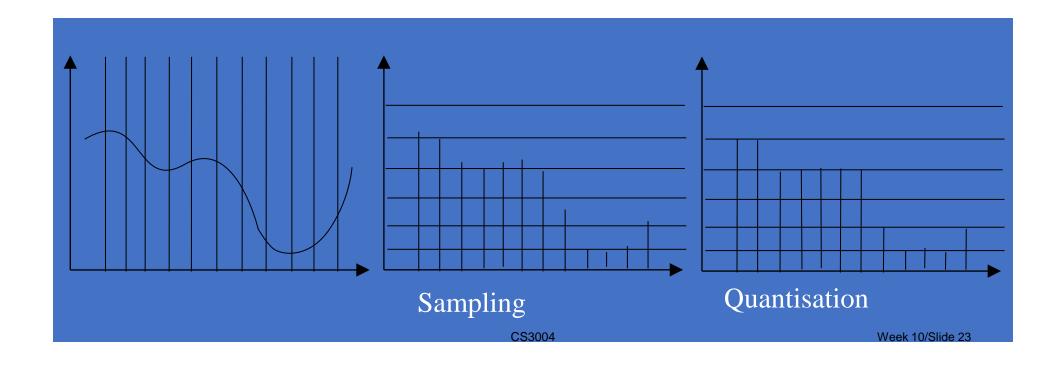
- Full range of human hearing up to 20kHz max.
 - i.e. needs 40kHz Sampling rate
 - CD quality (44.1kHz used)
 - DAT (Digital Audio Tapes) 48kHz
- low bandwidth music
 - Half CD quality e.g. 22.05kHz
- Speech
 - Half again e.g. 11.025kHz
- Telephones
 - 3.2kHz

Quantisation of Sound

- 16-bits per sample is usually sufficient
 - 65536 quantisation levels
- 8-bits per sample OK for speech
 - 256 levels
- Course quantisation produces quantisation noise
 - Can dither the signal
 - Add random noise before sampling

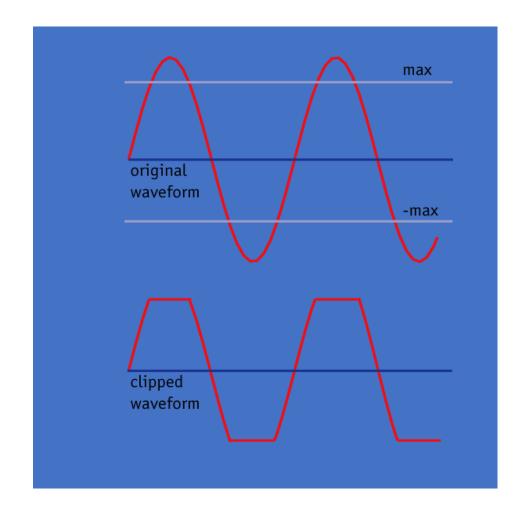
Sampling and Quantisation of Sound

- Sampling measuring at discrete time steps
- Quantisation restricting the value of measurements to discrete values



Clipping

- •If recording level is set too high, signal amplitude will exceed maximum that can be recorded, leading to unpleasant distortion
- •But if level is set too low, dynamic range will be restricted



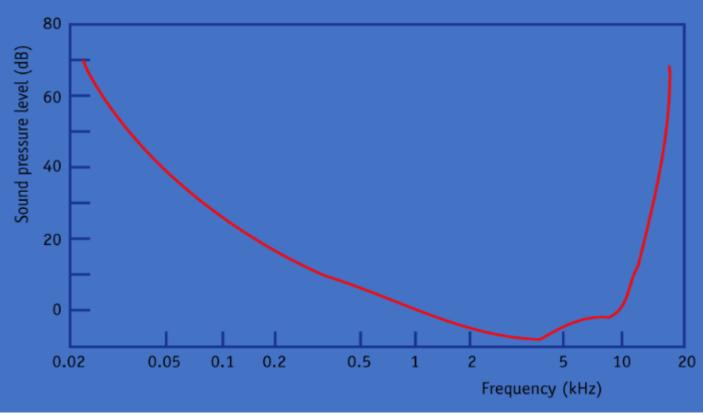
Compression

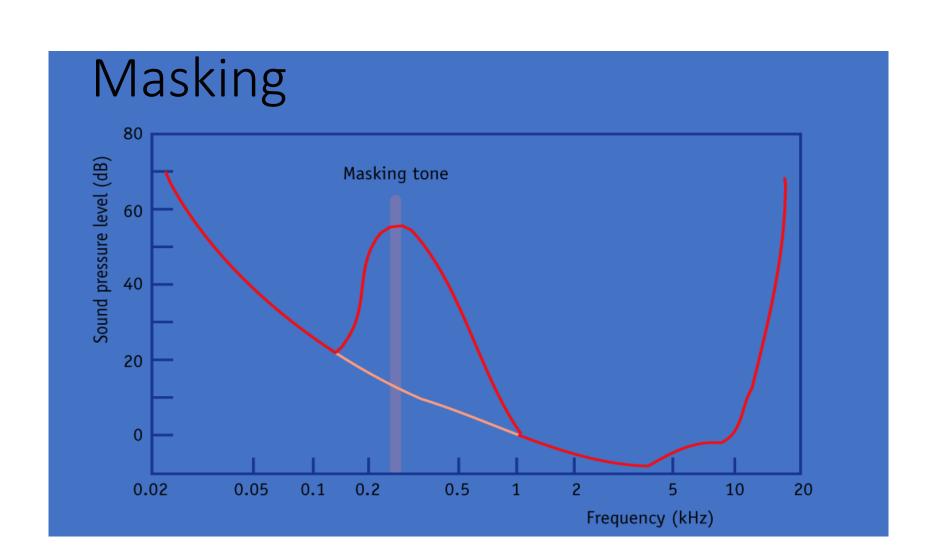
- Sampling rate r is the number of samples per second
- Sample size *s* bits
- Each second of digitized audio requires rs/8 bytes
- CD quality: r = 44100, s = 16, hence each second requires just over 86 kbytes (k=1024), each minute roughly 5Mbytes (mono)
- In general, lossy methods required because of complex and unpredictable nature of audio data
- CD quality, stereo, 3-minute song requires over 25 Mbytes
- •Data rate exceeds bandwidth of dial-up Internet connection
- Difference in the way we perceive sound and image means different approach from image compression is needed

Perceptually-Based Compression

- Identify and discard data that doesn't affect the perception of the signal
- •Needs a *psycho-acoustical model*, since ear and brain do not respond to sound waves in a simple way
- Threshold of hearing sounds too quiet to hear
- Masking sound obscured by some other sound

The Threshold of Hearing





Compression Algorithm

- Split signal into bands of frequencies using filters
- •Commonly use 32 bands
- •Compute *masking level* for each band, based on its average value and a psychoacoustical model
- •i.e. approximate masking curve by a single value for each band
- Discard signal if it is below masking level
- •Otherwise quantize using the minimum number of bits that will mask quantization noise

MP3

- •MPEG Audio, Layer 3
- •Three *layers* of audio compression in MPEG-1 (MPEG-2 essentially identical)
- •Layer 1...Layer 3, encoding proces increases in complexity, data rate for same quality decreases
- •e.g. Same quality 192kbps at Layer 1, 128kbps at Layer 2, 64kbps at Layer 3
- •10:1 compression ratio at high quality
- Variable bit rate coding (VBR)

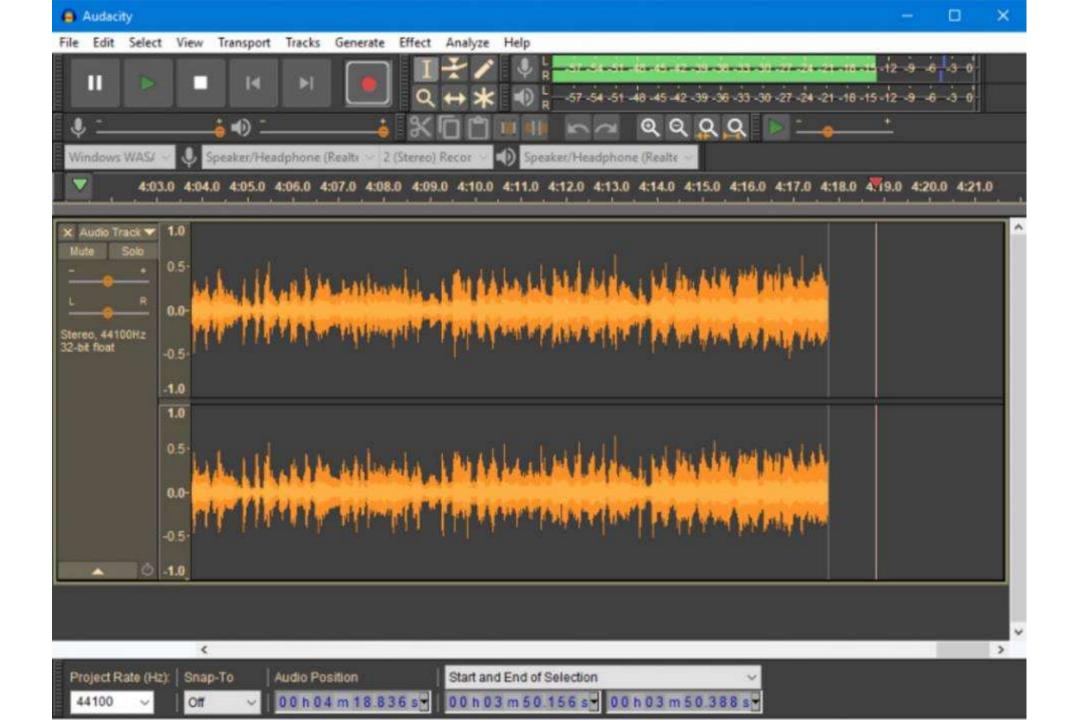
A few words about audio compression

- analog signal sampled at constant rate
 - telephone: 8,000 samples/sec
 - CD music: 44,100 samples/sec
- each sample quantized, i.e., rounded
 - e.g., 28=256 possible quantized values
- each quantized value represented by bits
 - 8 bits for 256 values

- example: 8,000 samples/sec, 256 quantized values --> 64,000 bps
- receiver converts bits back to analog signal:
 - some quality reduction

Example rates

- CD: 1.411 Mbps
- MP3: 96, 128, 160 kbps
- Internet telephony: 5.3 kbps and up



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Recording sound

- Sound capture
- Microphones
- Recording with a computer
- Recording with a phone
- Recording with a recorder

Sound Capture

- Microphone electromagnetic pickup
 - Physical movement (due to sound) of magnet produces oscillating magnetic field.
 - Oscillating magnetic field induces electrical current
- Microphone may have larger frequency response than human ear
 - Need to filter these out <u>before</u> sampling.
 - Because of *aliasing* ...



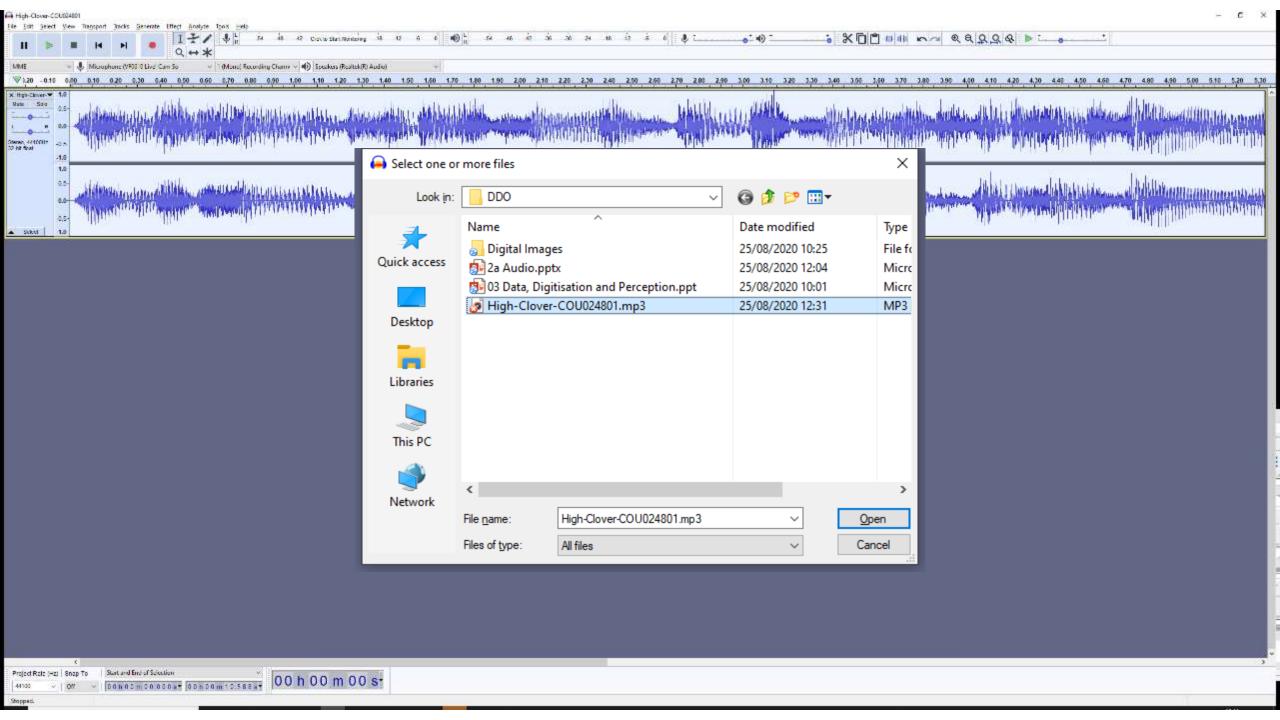
- Lavalier Microphone: Aural
- Condensor mics: Studio recording
- Dynamic Mics: Live recording
- USB Mics: Streaming
- https://ehomerecordingstudio.com/types-ofmicrophones/

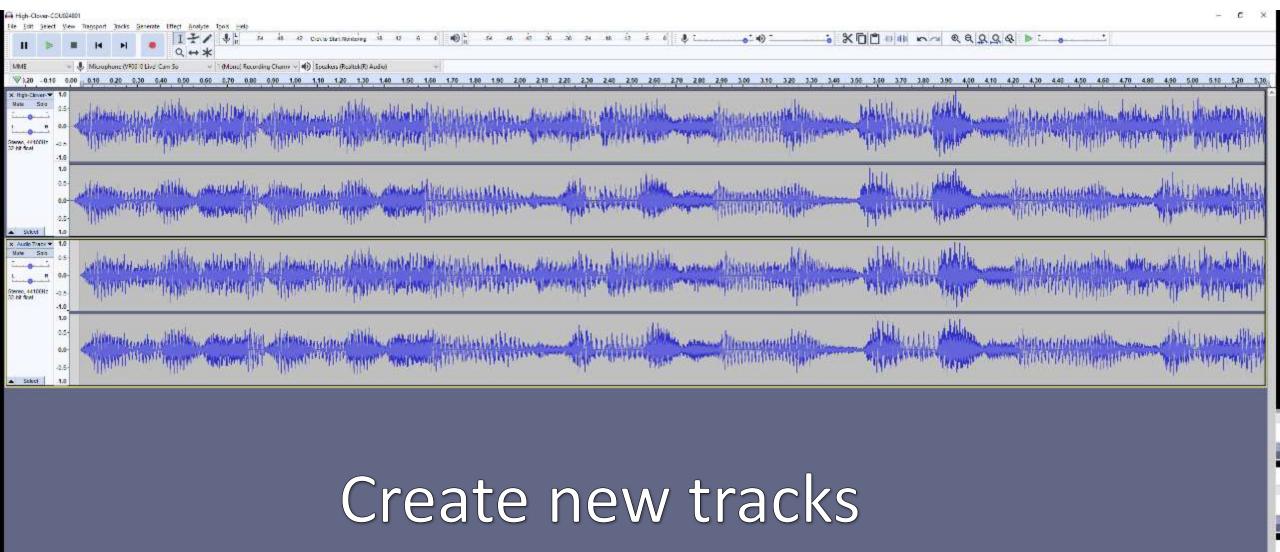
Microphones

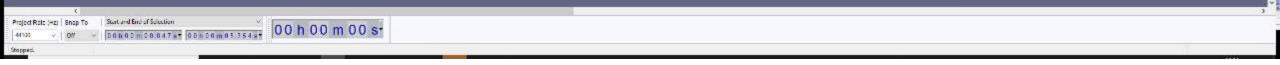
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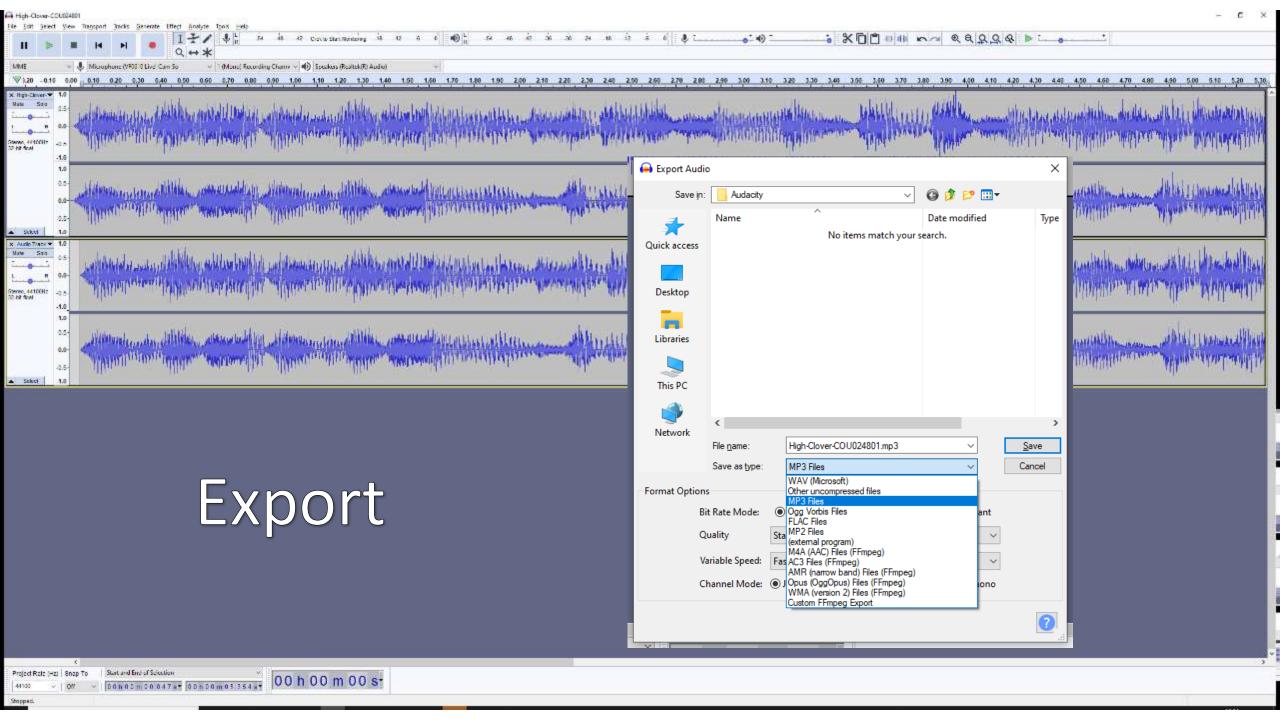
Editing sound

- Select
- Delete
- Copy
- Paste
- Creating new tracks
- Merging tracks
- Export
- Save





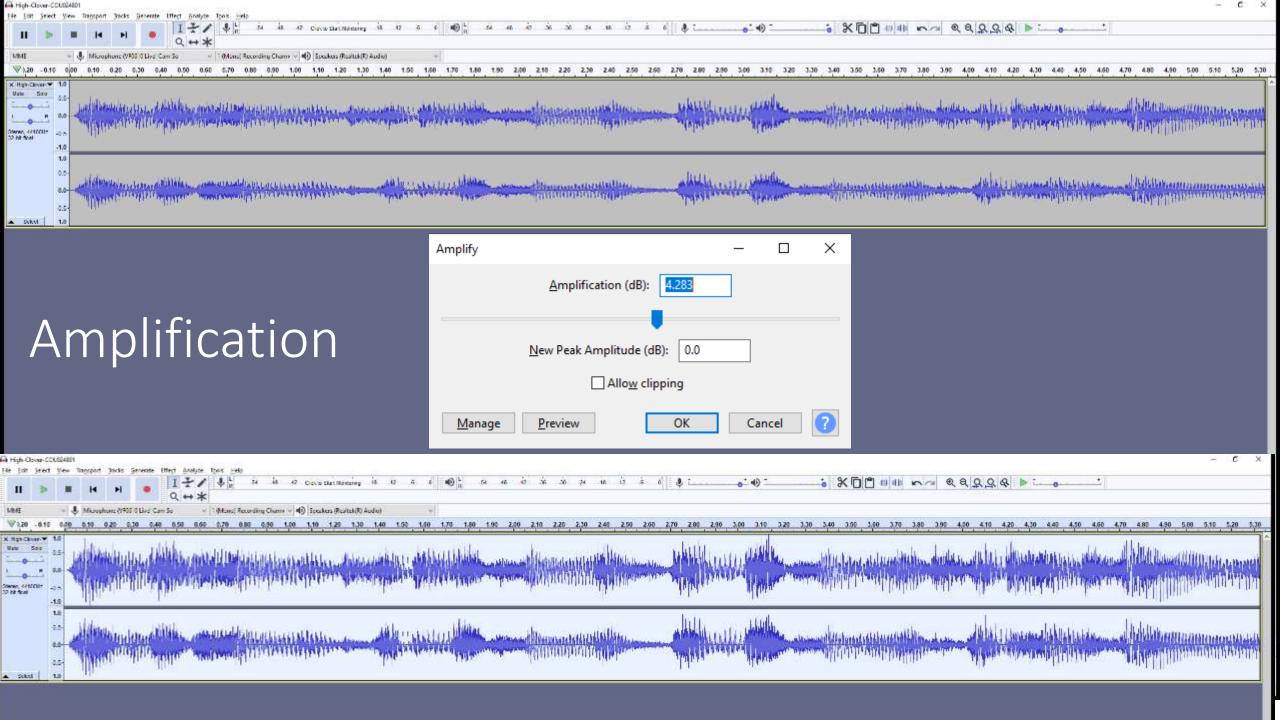


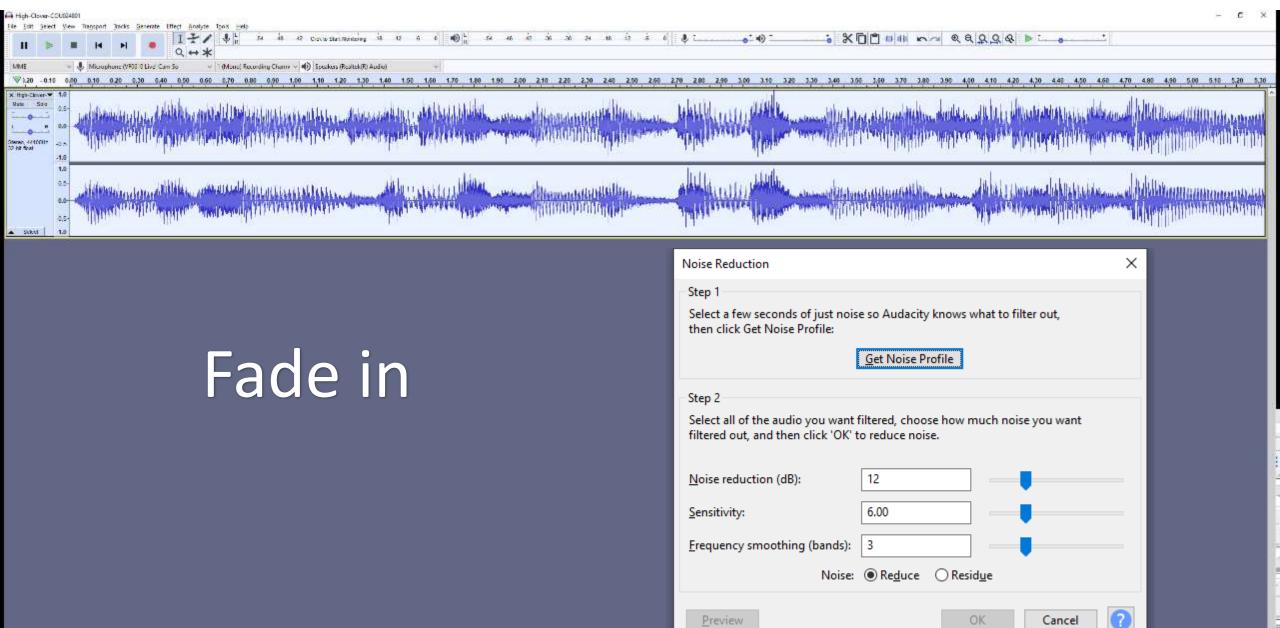


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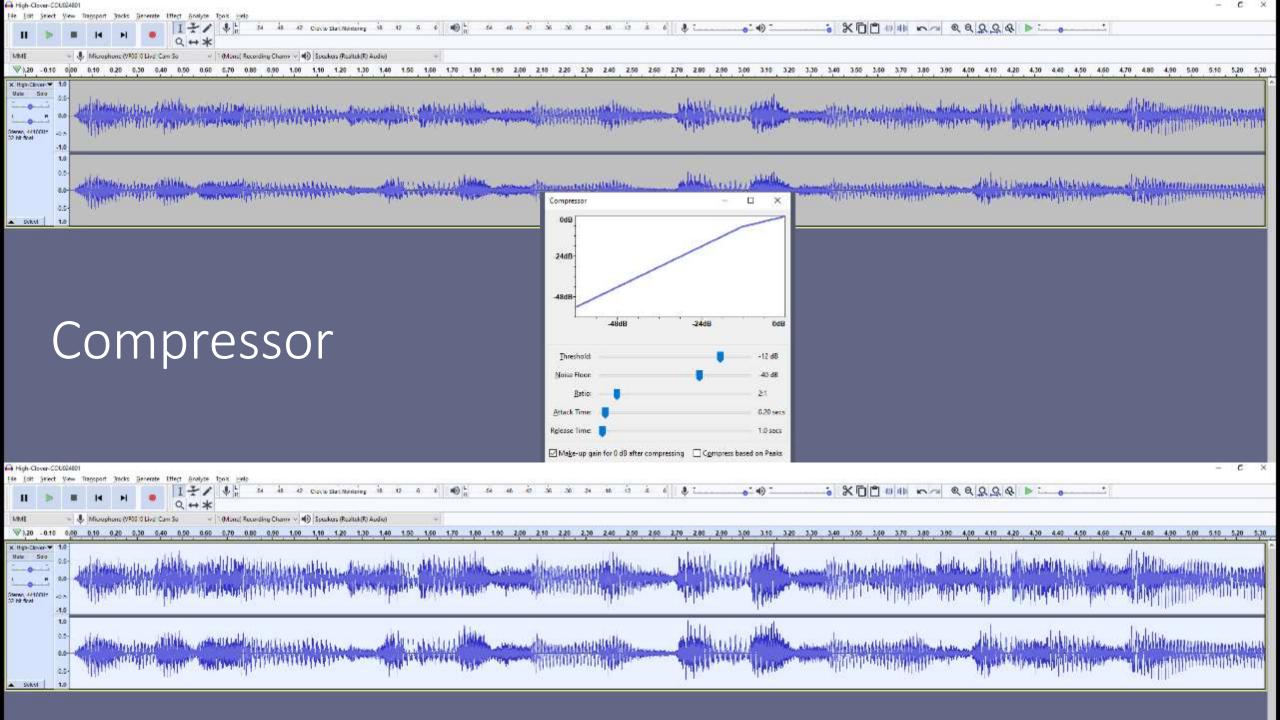
Processing sound

- Amplification
- Compression
- Noise removal
- Adding a bit of echo



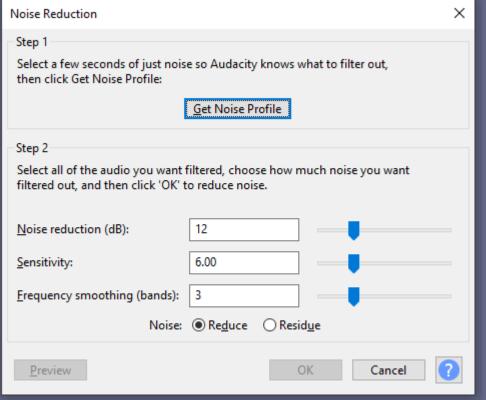


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Noise reduction



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Sharing

- Creating a podcast
- Soundcloud
- Using with Video
- Facebook
- YouTube



Search for artists, bands, tracks, podcasts



Hear what's trending for free in the SoundCloud community



All With III





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Other Kettel | Jud' year



U.Sobernseryown





POP SMOKE



HUMBER AT JESTIC JOHN TO POP SMOKE



يمو كونو (البشريت الحرام) Pop Smoke ' Mood Swings ... Wegz - El Ghasala (2020 ميه Pop Smoke - For The Night... Lemonade Ft. Don Toliver ... Smile (with The Weekind)



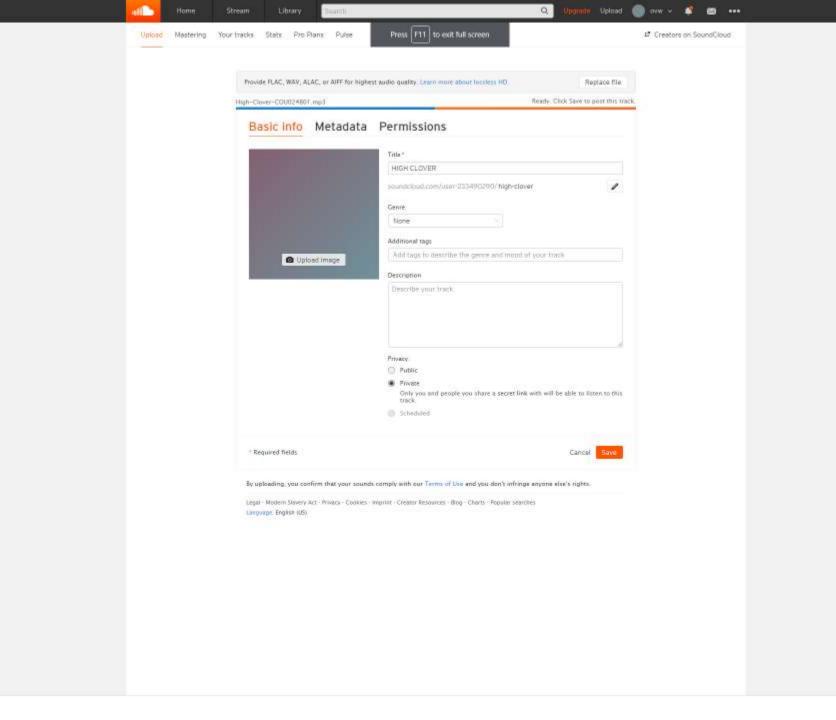
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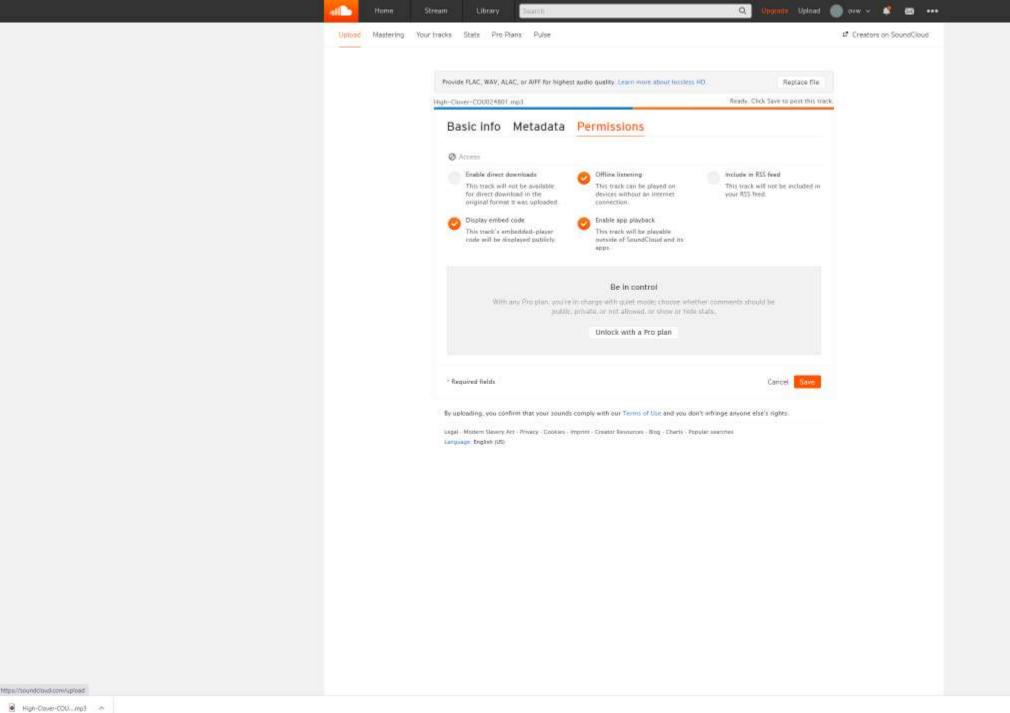


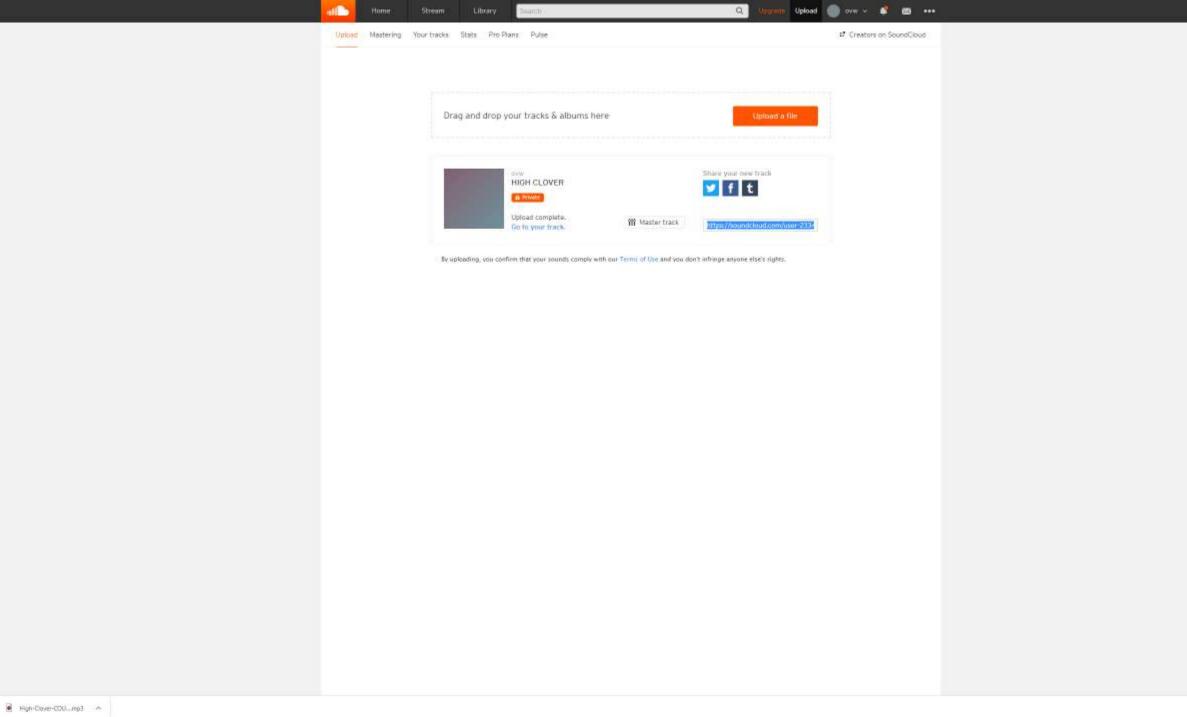
Joint Witch



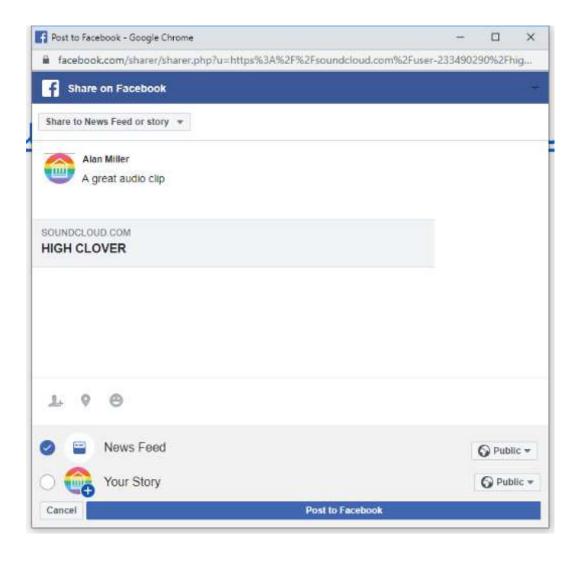
Mustra Labor







Sharing with Facebook

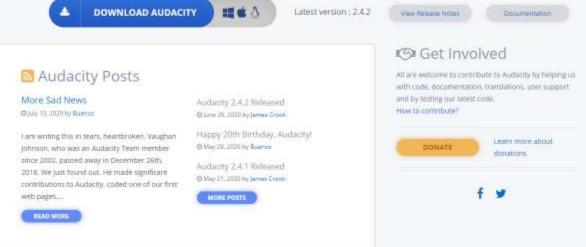


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Audio resources

- Free sound resources
- Unlocking our Sound Heritage
- Scotland's sounds
- Tobar an Dualchis
- Audio recording and editing: Audacity
- Music manager and player: Music Bee
- Media player: VLC
- Social media sound: Sound Cloud
- Social media video: <u>YouTube</u>, <u>Vimeo</u>





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VLC media player

VLC is a free and open source cross-platform multimedia player and framework that plays most multimedia files as well as DVDs, Audio CDs, VCDs, and various streaming protocols.



Wrsten 5.0.11 • Windows 6456 • 40 MB 50 004,452 downtoads so far











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Screenshots















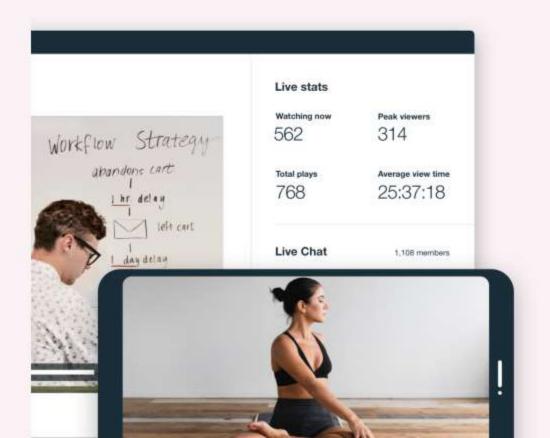




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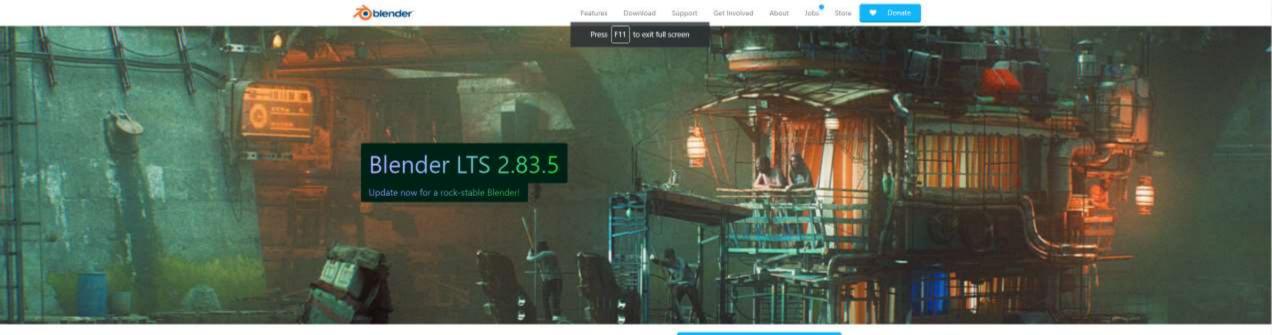
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Video Resources

- Avidmux
- Blender
- Kdenlive
- VLC Media player





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About

Blender is the free and open source 3D creation suite. It supports the entirety of the 30 pipeline-modeling, rigging, animation, simulation, rendering, compositing and motion tracking, video editing and 2D animation pipeline.

Blander Foundation Biender Institute Biender Network

Get Involved

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Blender News





Unity joins the Development Fund!

Lindu is now a fron-level contributor



Blender Conference

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Badge





Introducing: Community Coffee Run Open Movie

Enjoy the latest Open Movie by Blender Animation Studin

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Kdenlive 20.08.0 🚨

Latest News

GSoC'20 Progress: Onward with the Third Month

Aug 22, 2020 | 050C Nove | 2 Comments

Greetings! It's been a while since my last update. In this post, I will describe the work. I have done up until now in Phase Three of the coding period. This phase, I worked on making the subtitles displayed on the timeline editable. Since the text and end positions...

READ MORE

Kdenlive 20.08 is out

Aug 17, 2020 | News, Salesses, Occasinguement | 32 Comments

Kdenlive 20.08 is out with nifty features like: Interface Layouts, Multiple Audio Stream support. Cached data management and Zoombars in the Clip Monitor and Effects. Panel but one may argue that the highlights of this release are stability and interface improvements...

READ MORE

GSoC'20 Progress: Week 7 and 8

Jul 28, 2020 | GOOK, Name | J Continents

Greetings! With the subtitle information. i.e., the text, the start and end points of each subtitle, being correctly stored in the abstract list model, I shifted my focus in these two weeks towards the UI development of subtities in the timeline. First, to confirm...

READ MORE

GSoC '20 Progress: Week 5 and 6

Jul 20, 2020 | GEDC, News | 7 Comment

Greetings! The Second Phase began with Week 5 of the coding period. The next two weeks involved debugging the previously written code and including necessary connections for it to work. For this, I made use of the signal - slot mechanism of the splendid framework that...

READ MORE

GSoC 120 Progress: Week 3 and 4

Jun 38, 2829 | EEGC, News | 3 Comments

Greetings! The past two weeks did not see as much progress as I would have liked because of my university exams and evaluations. Now, let's focus on the work that I could do before I got swamped with the academic work and term exams, I started the third week by...

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GSoC' 20 Progress: Week 1 and 2

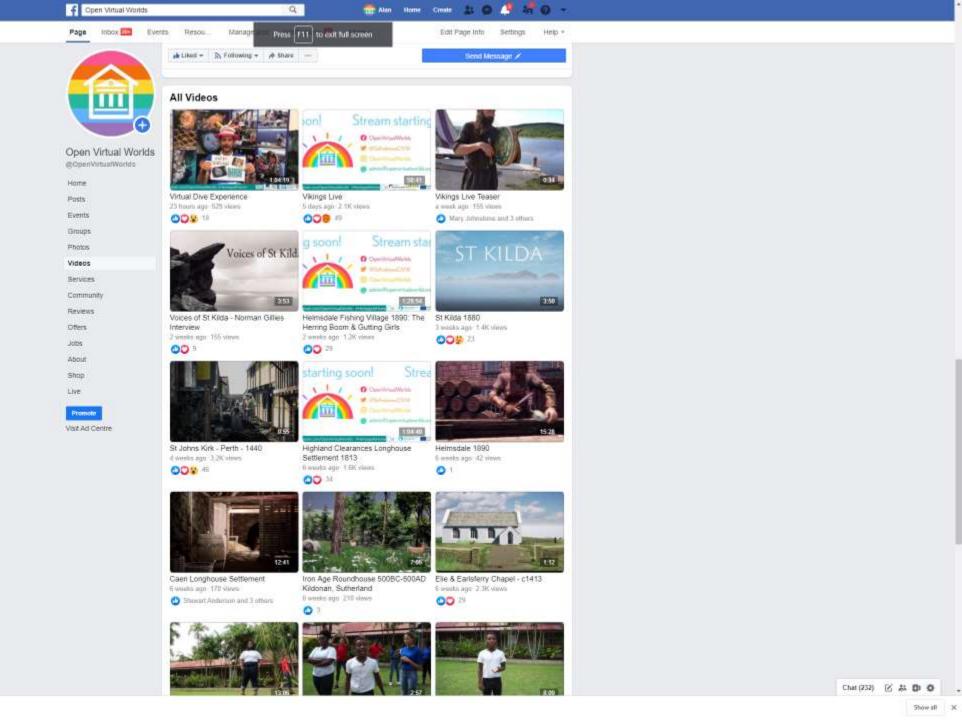
Aut 15, 2020 | 650C, //Aut | 2 Community

Greetings! It's been two weeks since the coding period began and I would love to: share with the community the progress t have made so far. In the past two weeks, I focused on implementing a basic class for handling subtifies. First, I created a class. called...

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e Older Entries

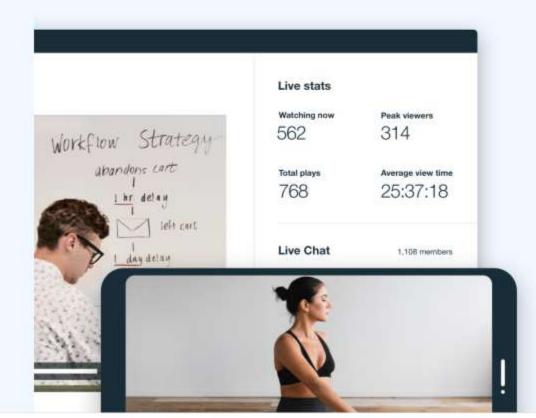
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