

User Stories

1. As a user, I want to open a media file and immediately see its duration and control playback so I can start reviewing its contents quickly.
2. As a user, I want to play, pause and seek/backtrack using a single keypress so I can maintain efficient control of playback while listening.
3. As a user, I want a scrolling waveform with a playhead indicating the current playback position so I can visualize what I hear with precise time positions.
4. As a user, I want to drop a tentative segment marker with one key press while audio is playing so I can capture moments in real time.
5. As a user, I want to select markers in playback and adjust their position with a single key press so I can refine segments to be more accurate.
6. As a user, I want to select the next/previous marker with a single key press so I can efficiently navigate between marked segments and refine their positions.
7. As a user, I want my markers to be exported to a .csv file so I can feed it into an existing ffmpeg workflow for further processing.
8. As a user, I want control over playback speed and looping so I can analyze audio contents with high efficiency and precision.
9. As a user, I want to classify markers as 'start', 'end', or 'start and end' so that segments are properly generated.
10. As a user, I want rules such as denying overlapping segments to be enforced so that .csv output is consistent.

Functional Requirements

Definite

- Ability open open local media files and load its audio track for playback
 - Compatible formats: MP4, MP3, .wav, etc are TBD
- Playback controls (play, pause, seek, rewind) and view current playback time
 - Jump forward/backward controls with custom configurations for time steps
- Visualization via waveform with a visible playhead indicating current playback position
- Ability to place a marker at the current playback time with a single key press
- Ability to delete/undo accidental or incorrect marker placement with a single key press
- Ability to select a marker and refine its position
- Each marker may be assigned a role: start, end, or start+end
- Validation for markers such that segments are ordered by start time and each 'start' marker is immediately followed by an 'end' marker (no overlapping or sub-segments)
- Ability to write the following fields to a .csv file: **Start time, end time, Title** and export file
- Timestamps exported in HH:MM:SS.mmm format relative to media start at 00:00:00:000 to a csv file
- Generate default placeholder titles for segments as **NNN Segment** to preserve lexical sort order

- Show users errors if there are unbound segments at export time so that the user can fix them
- Support the MacOS platform

Perhaps

- Connect the app to the clients existing ffmpeg workflow to automate the splicing of the audio without any extra steps required from the user after marking segments

Improbable

- Support for saving progress and reopening .csv files with user markups preserved
 - Import existing .csv files and reconstruct markers and segments for further refinement given a corresponding audio file
- Fully customizable keybindings and UI organization, themes, relevant information displayed
- Additional output formats for markers and segments in addition to .csv (external use cases outside of what was specified by client)
- Intelligent marker suggestions and segment titles to automate workflow
 - Provides a template, markers and titles must be editable
- Cut ‘dead space’ after markup has been completed

Non-Functional Reqs

Usability

- High-precision playback scrubbing to refine position of markers
- “Refinement playback” mechanism to repeatedly sample a short (configurable) window around a marker
- Reduced speed playback in ‘refinement mode’ (pitch preservation/tuning?)
- Preview window/section for current marked segments (time span, title displayed with edit controls)
- Keyboard first prioritization for controls, mouse click/GUI interactions also supported

Reliability

- Program does not edit/corrupt original media files

Performance

- Playback controls should be precise and instantaneous (especially play/pause)
- Marker placement should be precise and instantaneous corresponding to current playback position

- Audio should be easily loaded into the application in a reasonable time.

Supportability

Definite

- Output .csv must be compatible with clients FFMPEG/post-processing workflows and tools
- Application is compatible with MacOS

Perhaps/Improbable

- multiplatform/webapp

Interfaces

GUI Interface

- View local storage and load media files
- Waveform display with playhead (expanded and magnified view)
- Current time display
- marker/segment list ordered by time

Keyboard Interface (controls)

- Play/pause
- Mark boundary (separate controls for start/end?)
- Delete marker
- Seek/backtrack (configurable step)
- Select next/previous marker
- Fine tuning for marker placement after selection (high precision)
- Playback speed controls (number keys?)