



Web Recording with Open Source Tools

Software to locally record and produce
A video from a web session on Linux



Presenter Background

- Mark Caldwell Walker
- Linux user (Fedora)
- Relevant experience for this topic:
Video recordings of FOS meetings, production of
Audio Production Quick Take videos—on Linux
- I co-host and edit/audio engineer the
CreativeCoasts.org podcast
- Radio amateur: AC3EW
- Personal introduction website:
marwalk.net



Topics Covered

- Planning Considerations
- Open Broadcaster Software (OBS) Studio
- PulseAudio: usage, benefits, and quirks
- Shotcut video editor
- GIMP to produce overlays
- Posting your rendered video to YouTube

Planning Considerations

- Put your web browser into full screen mode (F-11)
- Best to use headphones when recording
- Confirm your PulseAudio settings in **Record** mode
- Select the screen area to record with OBS Studio
- Ensure audio from **both remote and local audio** is being recorded in OBS Studio
- Know where to double check that OBS Studio is actually recording both Remote and Local audio

Open Broadcaster Software (OBS) Studio

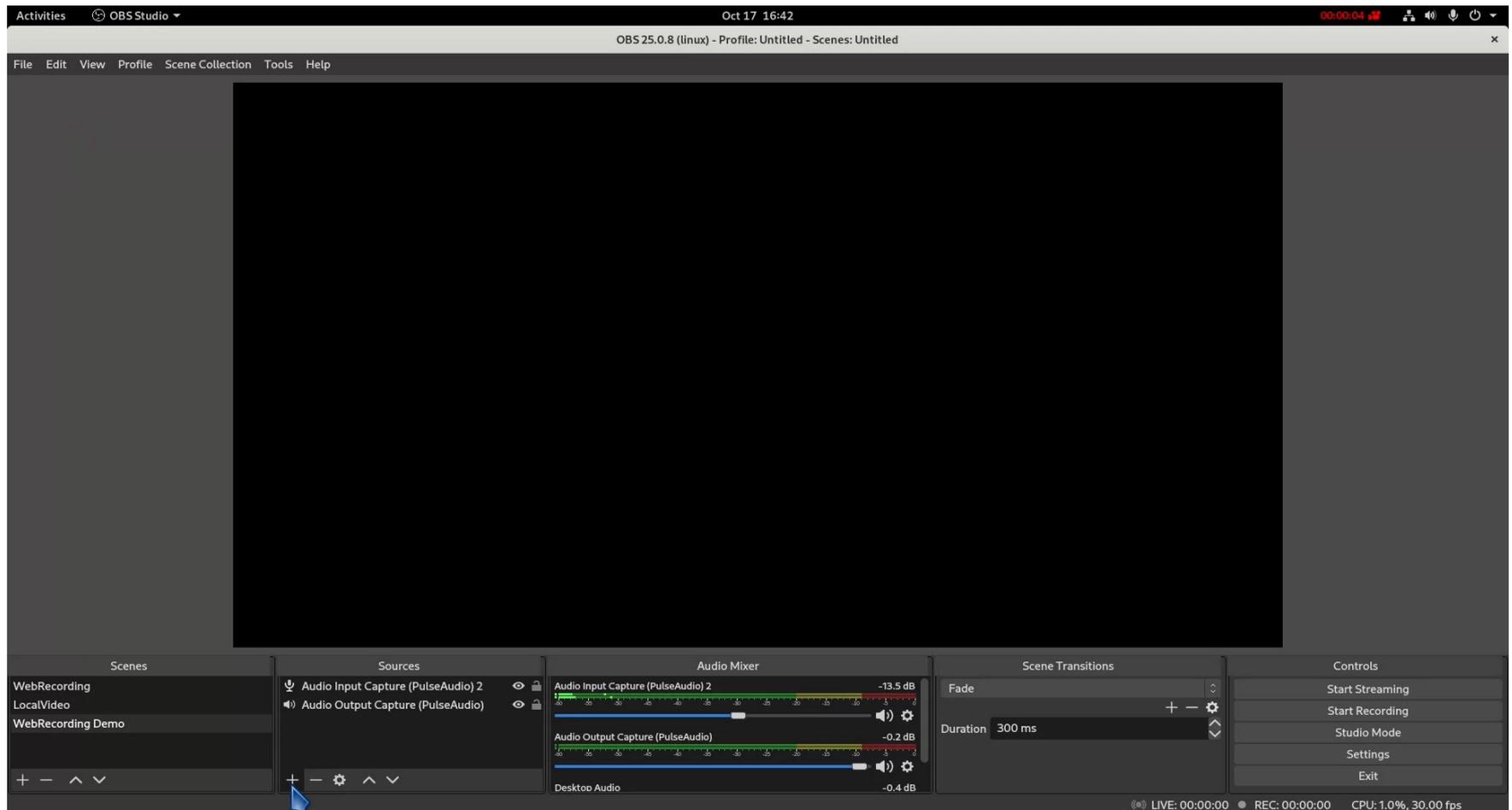
- <https://obsproject.com/>
- Configurable Scenes (think “profiles”)
- Selectable sources:
 - Video or Window capture
 - Audio capture
 - Image (e.g. for chroma key background)
- Audio Mixer panel



- Saves to a .mkv (Matroska multimedia container) file

OBS—Video Source Selection

- Important: Source (e.g. browser) must be open first!



OBS—Audio Source Selection

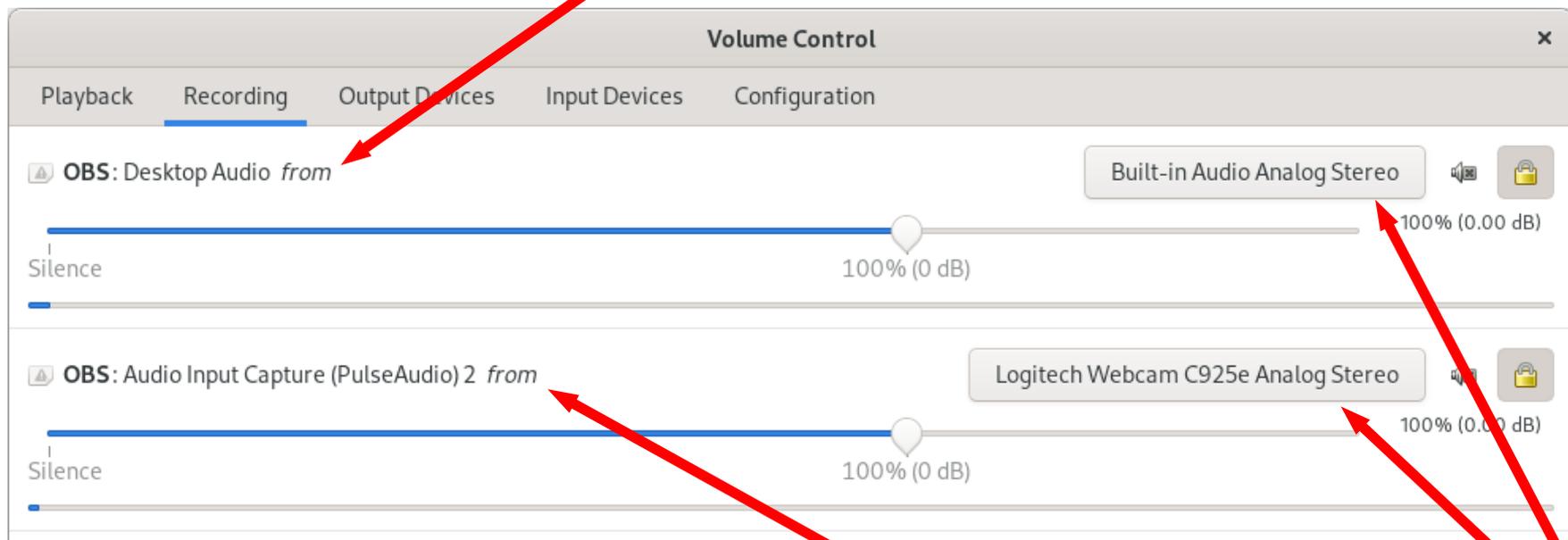
The screenshot displays the OBS Studio interface on a Linux system. The main preview window shows a desktop environment with a user named 'marwalk' logged in. The interface includes a menu bar (File, Edit, View, Profile, Scene Collection, Tools, Help), a top status bar (Oct 17 17:45, 00:00:04), and a bottom control panel. The control panel is divided into several sections: Scenes (WebRecording, LocalVideo, WebRecordingDemo), Sources (Audio Input Capture (PulseAudio) 2, Audio Output Capture (PulseAudio) 1, Window Capture (Xcomposite)), Audio Mixer (Audio Input Capture (PulseAudio) 2 at -13.5 dB, Audio Output Capture (PulseAudio) at -0.2 dB, Desktop Audio at -0.4 dB), Scene Transitions (Fade, Duration 300 ms), and Controls (Start Streaming, Start Recording, Studio Mode, Settings, Exit). The status bar at the bottom right shows 'LIVE: 00:00:00', 'REC: 00:00:00', and 'CPU: 1.0%, 30.00 fps'.

PulseAudio: benefits, usage, and quirks

- More precise control over ALSA functions
- Controls which apps use which sound sources
- Dynamically responsive to new sources/sinks
- *pavucontrol*—to open the GUI for PulseAudio Volume Control
- Check **after you start recording**—to ensure PulseAudio is still routing correctly
- Alternatives to PulseAudio:
 - JACK (JACK Audio Connection Kit)
 - PipeWire (eventually to replace PulseAudio)

PulseAudio Volume Control—Recording Tab (after “Start Recording” in OBS Studio)

Remote audio



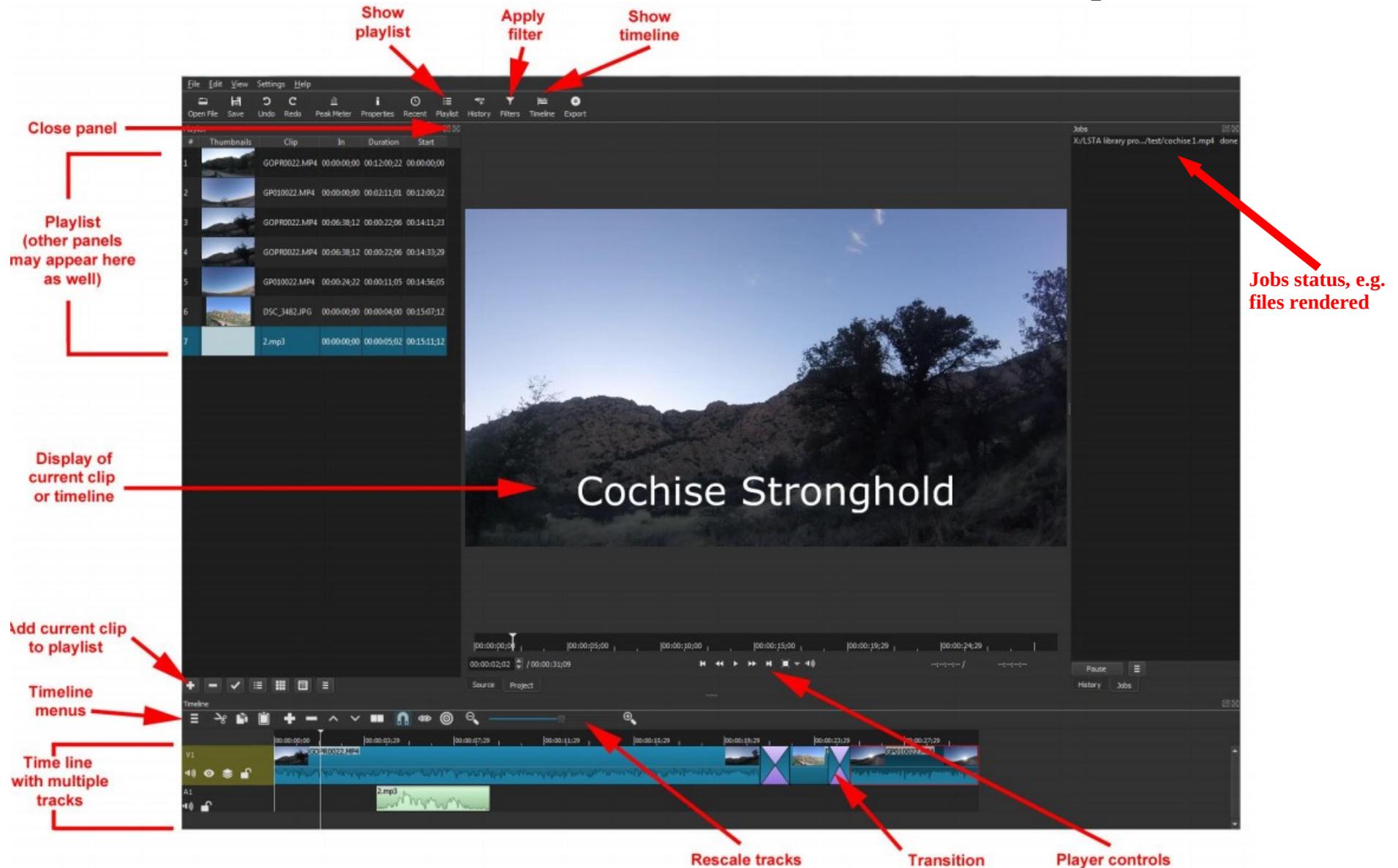
Local audio

NB: Check your sources from these pull-down menus

Shotcut video editor—for after capture

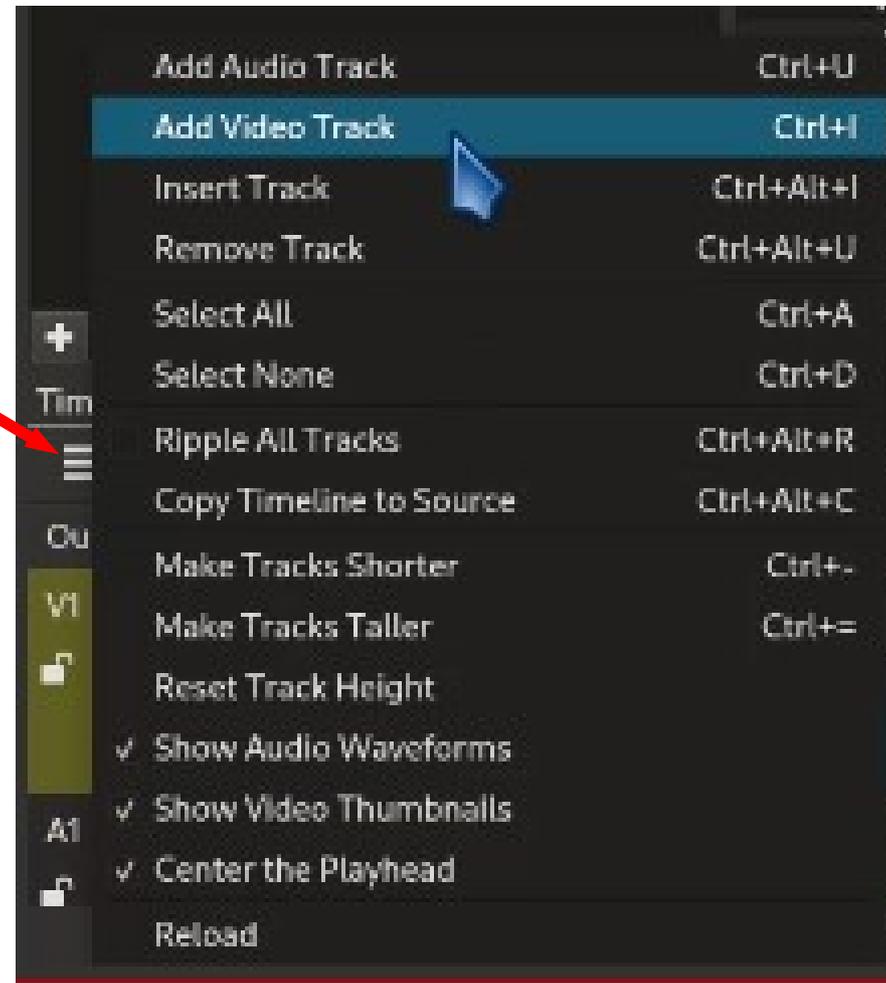
- <https://shotcut.org/>
- dnf install from @rpmfusion-free-updates
- Uses layered tracks—video and audio
- Still images in track—position can be animated
- Main display area showing real time changes
- Playlist area for staging clips/components
- Work areas scalable vis-à-vis each other (i.e. main, playlist, tracks)

Shotcut video editor—Work areas (panels)

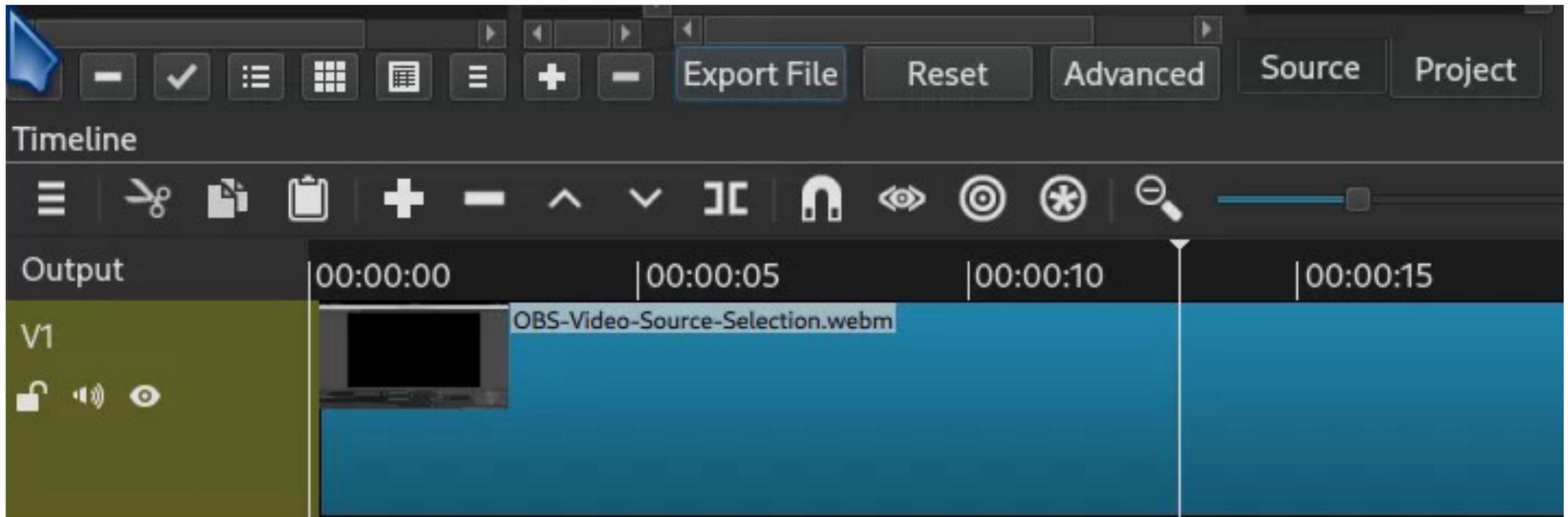


Shotcut video editor—Add tracks

Click Hamburger menu icon to open track options



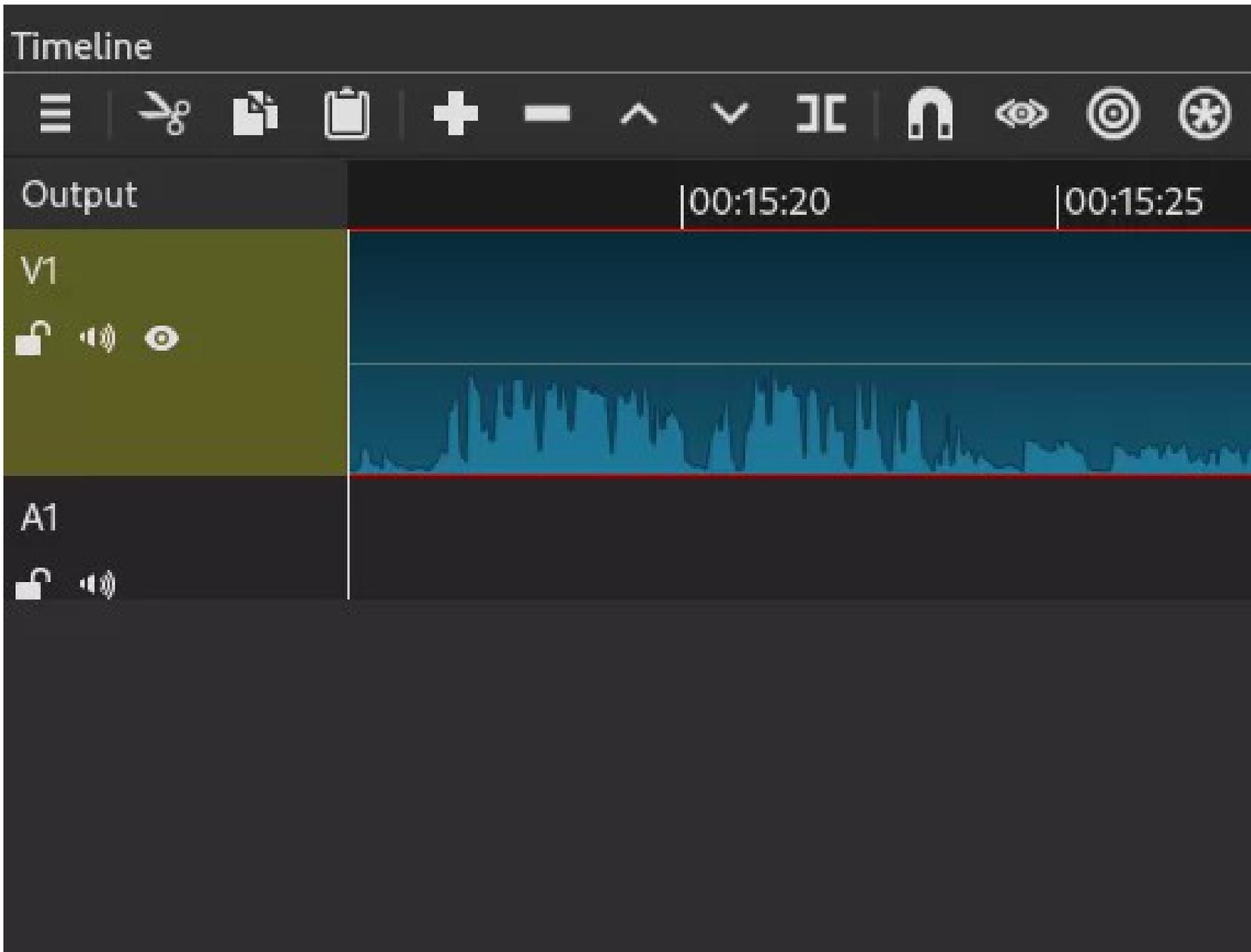
Shotcut—Split track to delete or move



Shotcut video editor—audio component

- Do all trimming of the raw composite video first: Then export (just the) audio from the result
- Level and normalize the audio external to Shotcut e.g. with ffmpeg
- Detach the audio from the original video track and discard it (remove it from its track)
- Re-import normalized audio into a new audio track
- Align re-imported audio to time with the video

Shotcut video editor—audio component (2)



Shotcut video editor—audio component (3)

The screenshot shows the Shotcut video editor interface with the 'Export' dialog box open. The dialog is titled 'Export' and has a 'Presets' panel on the left and an 'Export Help' panel on the right. The 'Presets' panel is expanded to show the 'audio' category, with 'WAV' selected. The 'Export Help' panel contains the following text: 'The defaults create a H.264/AAC MP4 file, which is suitable for most users and purposes. Choose a **Preset** at the left before deciding to use the **Advanced** mode. The **Advanced** mode does not prevent creating an invalid combination of options!'. Below this text, there is a 'From' dropdown menu set to 'Timeline', a checkbox for 'Use hardware encoder' which is unchecked, and a 'Configure...' button. At the bottom of the dialog, there are buttons for 'Export File', 'Reset', and 'Advanced'. The main interface shows a timeline at the bottom with a playhead at 00:15:35:21. The top of the interface has a menu bar with options like 'Peak Meter', 'Properties', 'Recent', 'Playlist', 'Timeline', 'Filters', 'Keyframes', 'History', 'Export', and 'Jobs'. The right side of the interface has tabs for 'Logging', 'Editing', 'FX', 'Color', 'Audio', and 'Player'.

GIMP to produce overlays

- Make a screenshot of the scene the overlay will cover (only to use as a guide for the overlay)
- In GIMP, open the screenshot (from saved file or clipboard) as a Layer—and scale to same ratio as video
- Create new layer with a solid (or other) background

GIMP to produce overlays (cont'd 1)

- Mask new layer with Black (== “clear”) i.e. full transparency (think RGB 0,0,0)
- In new (masked) layer, select the area to be obscured
- Bucket fill the selected area only with a fill color (or other pattern)

GIMP to produce overlays (cont'd 2)

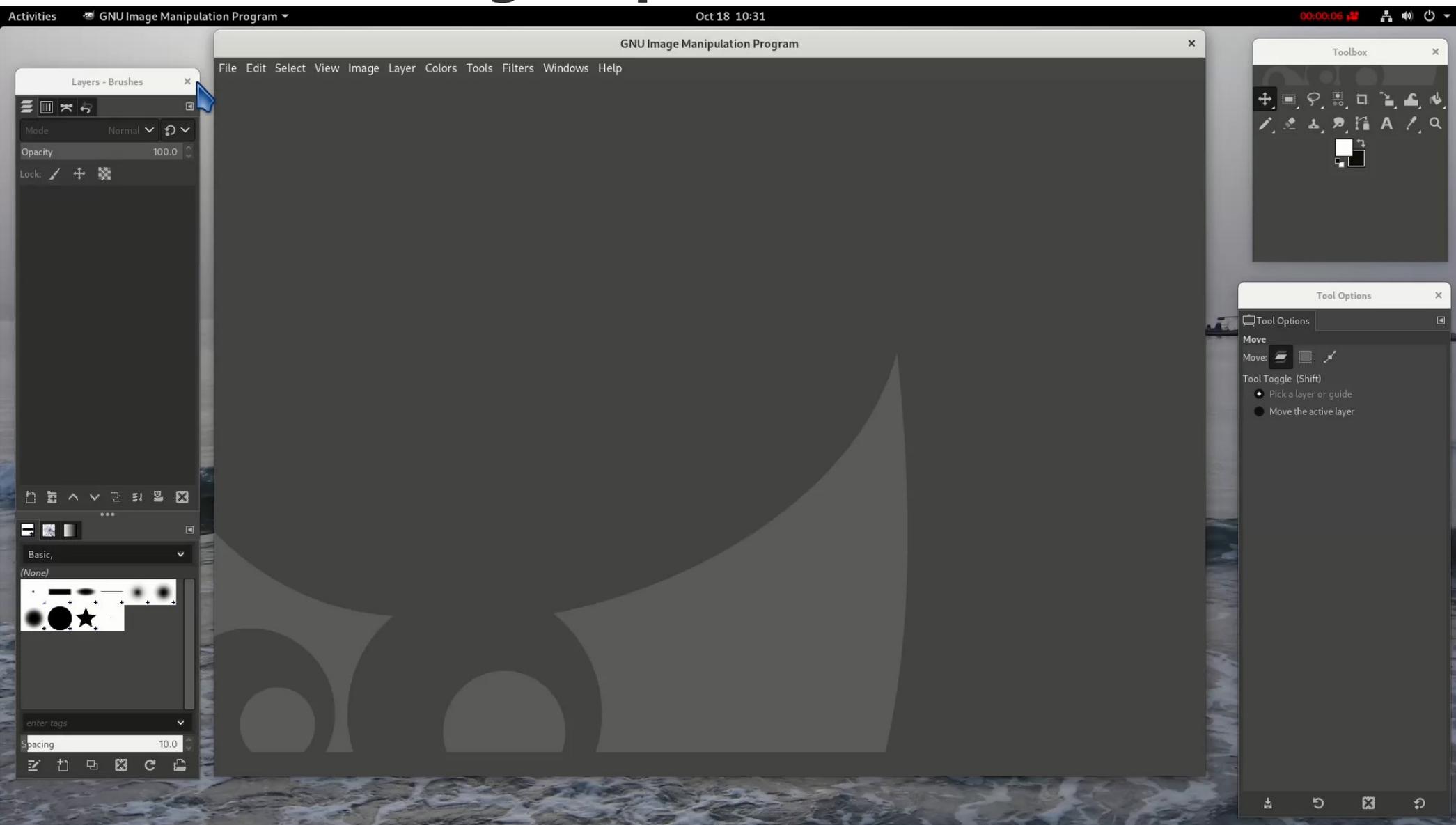
- Insert any text desired as an additional layer over the selected filled area
- Make the original screenshot layer not visible (un-select the eye icon)
- At this point all that should be visible is the overlay block on a transparent background

GIMP to produce overlays (cont'd 3)

- Export to .png or something else importable into your video project
- Save final working result (GIMP .xcf file) (for further editing or as a template later)
- Import your exported image into the **Top** video track in Shotcut (so it will **overlay** the video tracks below it)

GIMP to produce overlays (cont'd 4)

Video showing steps listed above



GIMP to produce overlays (cont'd 5)

Overlay file on top of blue a background

This area displays the current time in UTC.

Posting your rendered video to YouTube

- Be sure you're logged into the correct YouTube account
- Have description of the video ready
- Have list of tags ready
 - comma sets a tag
 - can have multi-word tags
- Do not close browser tab after clicking Publish (may leave tab open and go do something else while a long video uploads)
- Can return later to edit description and tags

Important Takeaways

- Know how all components are interacting with each other **during recording**
 - Web browser
 - OBS Studio
 - PulseAudio
- In Shotcut (editing after video capture)
 - Import files by opening them
 - then drag to playlist to stage them
 - then drag to a track to place in timeline
 - Cannot change level order of layered tracks (so plan beforehand what overlays what)
 - Edit whole video before exporting audio, to normalize it for re-joining to the project



Practical Examples

- Questions
- Demos
- Experiments