Week 7 - Record and Edit Diagetic Sound

A diegetic sound is any sound that originates from the world of a video. A very simple way to think about diegetic sound is to think of it as that could make sound in the world of the video. If the camera can 'hear' it, it's diegetic.

The sound doesn't have to be featured on-screen. In fact, many diegetic sounds are not shown on-screen. Say there's an emergency and an ambulance is called. The corresponding siren sound that approaches would be diegetic, even if it's not shown on screen. This is because it's a natural sound of the video world.

Examples of Diegetic Sounds:

- **Dialogue**: even internal monologue is considered diegetic sound because it's the voice inside the character's head
- **Music**: Piano playing at a restaurant, music in an elevator, a street performer banging drums
- **Sound effects**: explosions, rain drops, car engines, and many, many more

(Source: Chris Heckmann)

Features of Audio Quality

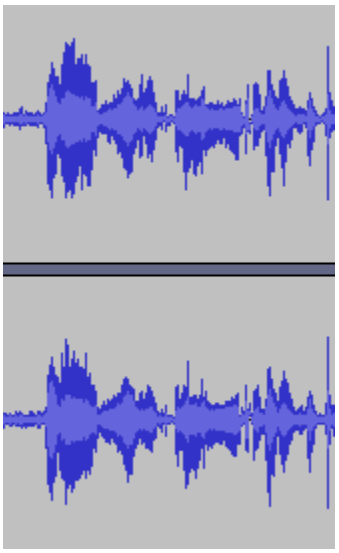
Getting good quality spatial audio recording

- Check that the Microphone is set for spatial audio (or surround or ambisonic) recording
- Recording level should be kept high without clipping (maintain a wide signal:noise ratio)
- Avoid handling noises (when you're holding a field recorder)
- No clipping of the audio input
- Keep the mic close to the source sound to maximise fullness of sound from the proximity effect
- Use of pop filter for vocals to avoid plosives (pops)
- Minimise background noise
- Avoid wind noise

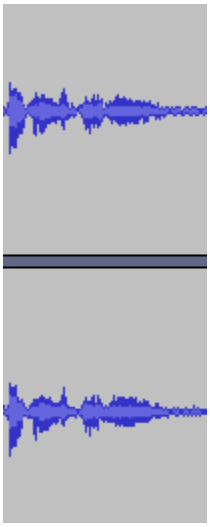
Possible Audio Issues to look out for

- **Quiet** - the recorded sound is of a low volume
- **Hum** - a constant low frequency steady tone, often from electrical systems

- **Buzz** - a constant mid frequency noise, often from electrical systems
- **Hiss** - a constant high frequency noise, often from wind, water or machines such as fans.
- **Clicks** - very short spikes in the audio, may be from equipment glitches or pops from breath plosives
- **Clipping** - distortion due to too high a recording or amplification level
- Intermittent **Noise** - occasional unwanted sounds, like coughing, airplanes, car horns, etc.
- **Dropouts** - short periods of silence, often due to equipment faults such as a broken microphone lead, or operator error.

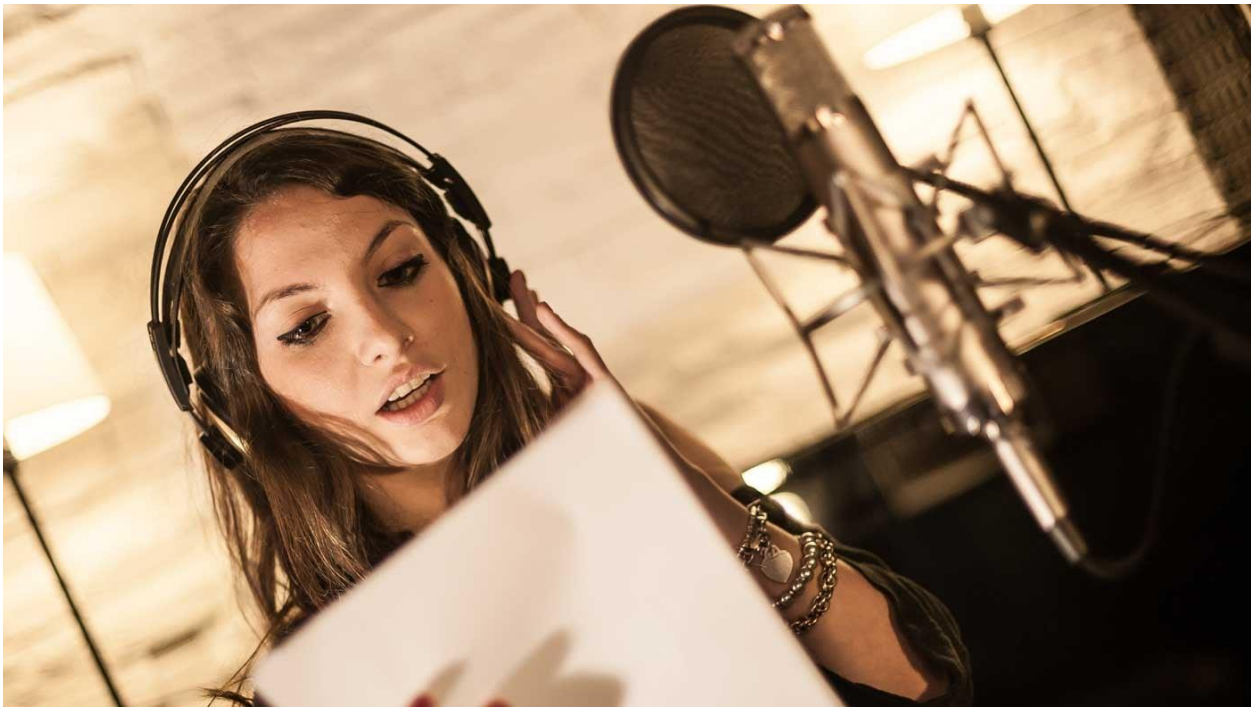


1 - Good Audio Level



2 - Low Audio Level

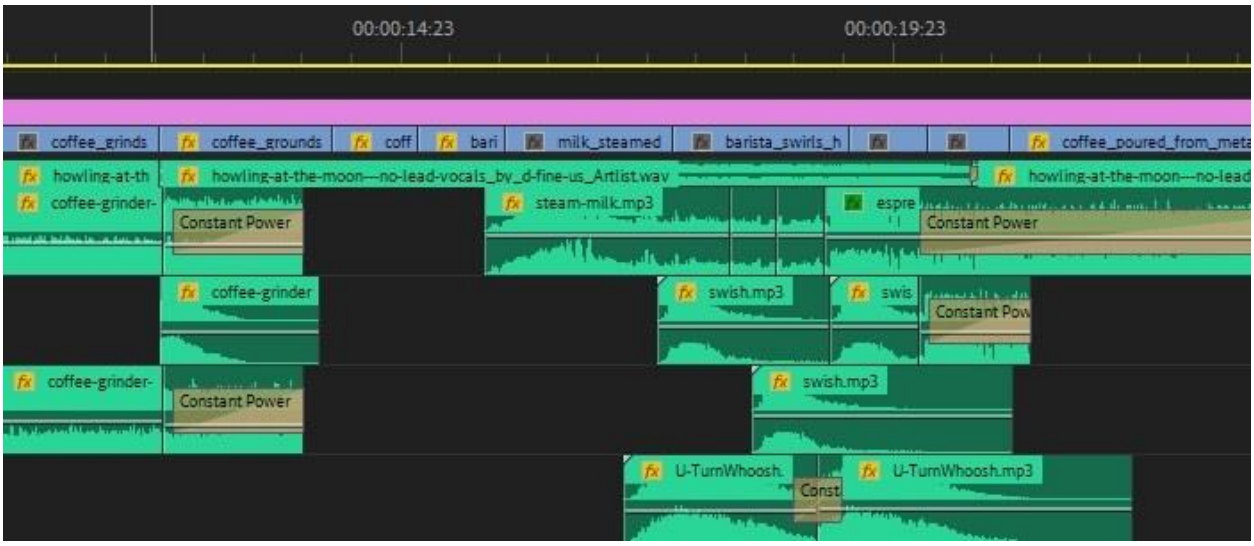
Recording dialogue



- Minimising Background Noise
    - Quiet Locations: Whenever possible, choose locations with minimal background noise. Early morning or late evening can offer quieter outdoor environments.
    - Close Windows and Doors: Minimise external noise leakage by closing windows and doors. Use weather stripping for additional soundproofing if necessary.
    - Soft Furnishings: Incorporate soft furnishings like sofas, cushions, and drapes to absorb sound and reduce echo in indoor settings.
- Distance from the Microphone
    - Set the microphone 6 to 12 inches from the narrator you'll get a crisp clear voice.
    - Make sure the microphone's not right next to the computer so it doesn't pick up the fan noise.
    - Adjust the recording level to get a strong recording level without clipping.
- Monitoring
    - Wear headphones connected to the recorder.

- Make sure you can clearly monitor your recording in real time and that the monitoring level is appropriate to the gain level of your recording. You don't want to end up recording at too low a gain level and later realise that your levels were set too low or too high.

Editing spatial sound in Premiere Pro



Audio Workspace

A quick way of seeing all the audio elements of Premiere Pro is to select the Audio workspace from the list of workspaces at the top of the Premiere screen, or from the Window menu.

Editing Tools

To the left of the Sequence window are a column of editing tools. The first one, an Arrow selection tool, will be the main one to use. Press 'v' any time to jump back to it.

Mute and Solo

Each audio **track** in the sequence as an 'M' and 'S' button for *muting* (silence) that track or *solo* it (silence all other tracks) it.

Enable and Disable

This applies to each **clip**. Right-click on the clip and tick, or untick, *Enable* to have that clip sound or be silenced.

Volume

1. Select a clip and press 'g', set change and apply (or cancel)
2. Click and drag the Volume line in the middle of the clip
3. Open the Audio Track Mixer and move the Volume fader

Cropping

Position the Razor tool (or press 'c' for cut) over the beginning or end of a clip, get the red arrow, click and drag the clip boundary.

Slice

Use the Razor tool and click to cut a clip in two.

Delete

Select a clip and press 'delete'

Duplicate

Option-drag on a clip to make and position a copy of it.

Dragging and Nudging clips

- Click and drag to move alone the timeline.
- Command-Arrow (left and right) to nudge a selected clip forward or backward.

Markers

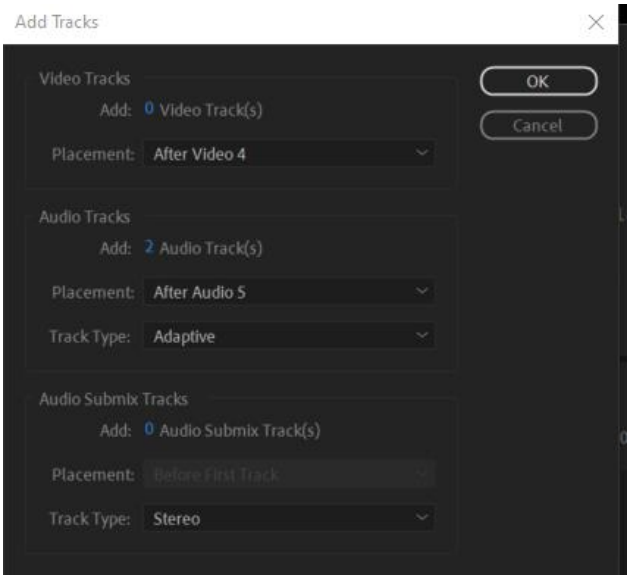
- Positing the playback cursor and press 'm' to insert a marker
- Double-click a marker to name it and change its parameters

Regions

Select In and Out points by positing the playback cursor and press 'i' then reposition and press 'o'

Adding Tracks

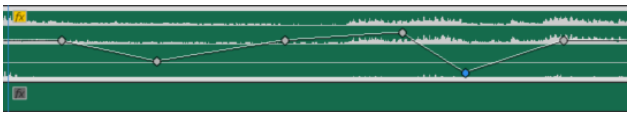
1. Right click in the left panel of the Sequence window below the existing tracks.
2. From the popup menu choose Add Tracks...
3. Set the number of new video tracks to 0
4. Set the number of Audio Track to the number you want to add
5. Change the Audio Track Type to Adaptive (you can ignore Audio Sub Tracks for now)
6. Click Okay



Clip Volume Automation

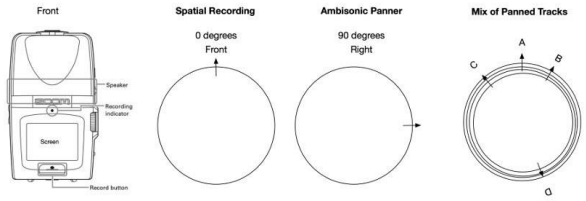
- Each audio clip has a volume 'line' that is visible when the track is expanded (drag from the bottom of the track area on the left of the sequence).
- This Line is the volume level of that clip. Dragging it up and down alters the volume of that clip.
- Add **break points** in that automation line (curve) by holding down the Ctrl (command) key and clicking on the line with the Selection tool.
- These break points can be dragged up/down/left/right to create volume ramps to fade up or down the audio volume.

- Panning automation can be similarly achieved by right-clicking on the clip and selecting Panning from the Show Clip Keyframes menu.

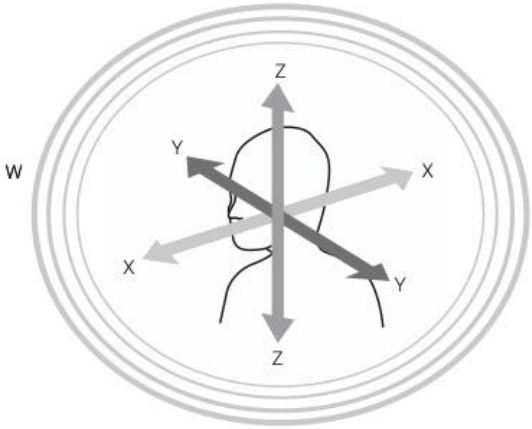


Panning

1. Record sounds with the front of the recorder facing toward 0 degrees.
2. Add sounds from a particular source to their own tracks in Premiere.
3. View the Audio Track Mixer (select a panel and choose from the Window menu)
4. Open the FX plugin panel at the top of the Audio Track Mixer
5. Insert the Special -> Ambisonic Panner plugin on all audio tracks that require panning.
6. Rotate (pan) each audio track as required so it sits at the correct orientation with the video



3 - Panning around the z plane - simulating head turnning



4 - With ambisonic recording on the H3 panning can be done around X, Y and Z planes.

Ambisonic Panner

To position (or move) a sound location within the 360 scene use the Ambisonic Panner

1. Display the Audio Track Mixer
2. Click in the top left corner to reveal the plugin effects area
3. Use the dropdown menu at the top of each channel to select a plugin

5 - Ambisonic Panners on tracks and Binauralizer on the Mix

Foley Sound

What is Foley?

Foley is the reproduction of everyday sound effects that are added to films, videos, and other media in post-production to enhance the video with audio features. These reproduced sounds, named after sound-effects artist Jack Foley, can be anything from the swishing of clothing and footsteps to squeaky doors and breaking glass. Foley sounds are used to enhance the auditory experience of the movie. Foley can also be used to cover up unwanted sounds captured on the set of a movie during filming, such as overflying aeroplanes or passing traffic. - Wikipedia

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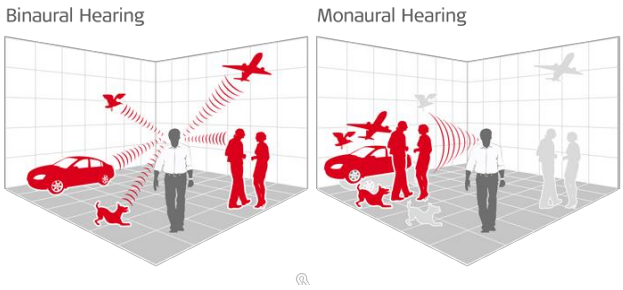
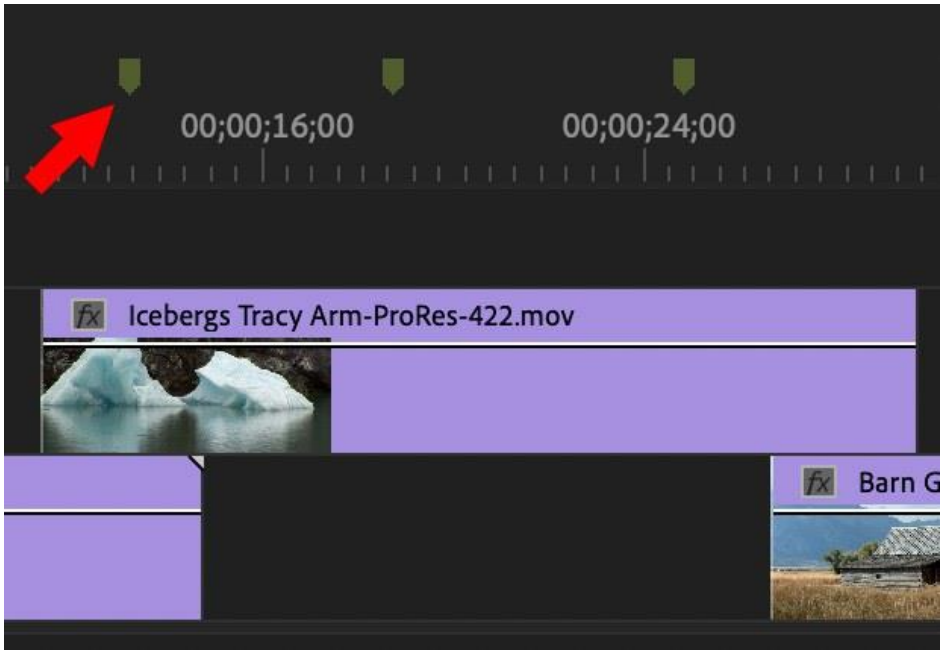
Capture foley sounds in spatial format

In order to maintain the spatial direction of sounds in your 360 projects make sure all sounds are recorded as ambisonic files. Take care to ensure that sound effects are positioned in the right place when recorded, or use the spatial panner in Premiere's Audio Mixer to rotate them to the correct orientation.



Spotting Cues



- The location in the video where sounds are required need to be identified as audio cues
- 360 Audio needs audio cues to be notes in two dimensions: in **space** and in **time**.
- Sounds need to be panned so they appear from the correct direction, front, left, right, back, above, ...
- Sounds need to be positioned in time to start and end at the correct time as the video plays
- Use Markers to 'spot' the locations in the video where sounds need to be and make notes about what the sound should be and where it should be placed.
- Export this marker list to help guide your audio creation process.

Markers

- Make sure no elements in the sequencer are selected.
- Play the video through, or scroll manually, and press 'm' to add a marker at a time location. Name it.
- Repeat to mark all locations in time where an audio cue is required.
- To view all markers, select Markers from the Window menu
- Add notes the markers about what that audio cue should be
- Save the Markers to a CSV file using File -> Export -> Markers (or take a screenshot) as a guide to the audio files you need to record/create.