Mach1 Spatial System™

Mach1 Transcoder
(M1Transcoder)

Feature Guide

Table of Contents

Description & User Story

Mach1 Spatial Format Explained

Mach1 Spatial is a VVBP (Virtual Vector Based Panning) spatial audio format that encourages users to have complete freedom with their post production mixing process by not forcing the user to use any sonic signal altering processing. The user is free to apply their own DSP/ASP to their audio during the mixing process without needing to be forced into proprietary DSP algorithms for spatial audio seen in other formats or tools. With this in mind the user is completely in control of their creative mix process and can make any decision they want whether it results in realistic spatial fields or not.

Transcoder Explained

Mach1 Spatial as a virtual vector based format has the advantage of not using any signal processing effects for pre-rendering or playing back spatial audio. Due to this major advantage; the user is able to leverage Mach1 Spatial format as a master spatial audio format and use the Transcoder to down mix to all other spatial or surround formats without introducing any mix altering effects, guaranteeing the most 1:1 transcoding possible.

Format Conversion (m1-fmtconv)

The format conversion math uses basic coefficient changes to channels of audio with only the process effecting: re-ordering channels to the correct output, correctly distributing audio data to the correct output channels. There are no other effects applied to the master mix.

Headlocked/Static Stereo

Use the Input Static Stereo Mix field to correctly mux master headlocked stereo audio, ideal for adding music or some VO elements (as well as experimental elements) to your spatial mix. These channels will remain intact until the decoding stages, at which point the target app will sum these channels to the output decoded stereo from the spatial mix *(if your target app supports this)*.

Transcoding Features

Input

Audio

Mach1 Spatial Input - Single multichannel file of 8 channels exported/rendered from preferred DAW, supports aif or wav files.
(automatically detects Pro Tools HD multichannel .wav file and reorder the channels correctly during transcoding process from the 7.1 channel order)
Mach1 Horizon Pairs Inputs - Drag in the 4 exported stereo files. Add the following to the end of the file names to safely encode:
_000 (front)
_090 (right)
_180 (back)
_270 (left)
The M1Transcoder app will only display the available/relevant transcoding options for the Mach1 Horizon Pairs input type.

Video

Supports mp4 & mov video files, all conversions/encoding/transcodings use pass through video so that nothing is re-encoded or effecting the video streams of files.

Output Types

Spatial Format & File Type Allowed

Mach1 Spatial (Audio & Video)

Mach1 Horizon (Audio & Video)

Mach1 Horizon Pairs (Single Stream) (Audio & Video)

Mach1 Horizon Pairs / Quad-Binaural (Multiple Streams) (Audio & Video)

First Order Ambisonic ACNSN3D [Youtube] (Audio & Video) [Applies metadata for direct upload to Youtube depending on selected File Type]

First Order Ambisonic FuMa (Audio & Video)

Second Order Ambisonic ACNSN3D (Audio Only)

Second Order Ambisonic FuMa (Audio Only)

Third Order Ambisonic ACNSN3D (Audio Only)

Third Order Ambisonic FuMa (Audio Only)

5.0 Surround (L,C,R,Ls,Rs) (Audio & Video)

5.1 Surround (L,C,R,Ls,Rs,LFE) (Audio & Video)

5.1 Surround SMPTE (L,R,C,LFE,Ls,Rs) (Audio & Video)

5.1 Surround DTS (L,R,Ls,Rs,C,LFE) (Audio & Video)

5.0.2 Surround (L,C,R,Ls,Rs,Lts,Rts) (Audio Only)

5.1.2 Surround (L,C,R,Ls,Rs,LFE,Lts,Rts) (Audio Only)

5.0.4 Surround (L,C,R,Ls,Rs,FLts,FRts,BLts,BRts) (Audio Only)

5.1.4 Surround (L,C,R,Ls,Rs,LFE,FLts,FRts,BLts,BRts) (Audio Only)

7.0 Surround (L,C,R,Lss,Rss,Lsr,Rsr) (Audio & Video)

7.1 Surround (L,C,R,Lss,Rss,Lsr,Rsr,LFE) (Audio & Video)

7.1 Surround SDDS (L,Lc,C,Rc,R,Ls,Rs,LFE) (Audio & Video)

7.1.2 Surround (L,C,R,Lss,Rss,Lsr,Rsr,LFE,Lts,Rts) (Audio Only)

7.1.4 Surround (L,C,R,Lss,Rss,Lsr,Rsr,LFE,FLts,FRts,BLts,BRts) (Audio Only)

FB360/TBE (8ch) (Audio Only)

Output

The output options are dependent on what is possible per selected format as the list above shows.

Additional Features

Encode

Runs the transcoding process for the users input files to become the target output encoded audio/video (applies metadata for YouTube output if selected).

Auto File Loading

Drag and drop the input audio file(s) in the top half of app window and the intended video input in the bottom half of the app window to load the input files into the correct files easily.
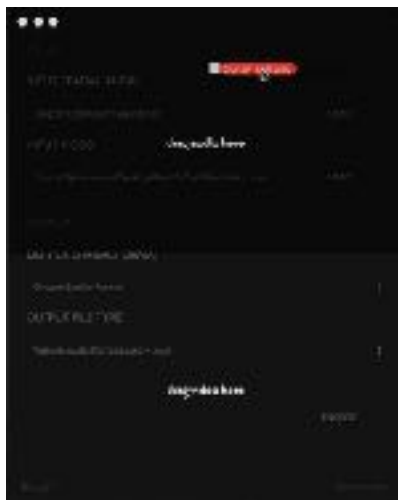
These features are available after a successful run of the M1-Transcoder.

Reveal In Finder

Shows user the location of the output transcoded audio/video file in Finder.

Preview

Opens a video player application with the user's output transcoded audio/video for quick layback review with spatial mouse scrubbing support to cut down on time typically used for spatial audio layback and mix reviews.

Preview Player

Key Commands
'Q' or 'G' or 'Z' — Open/Close guide GUI

Preview
Space bar for start/stop on playback
Use mouse to orientate Yaw and Pitch (use Roll slider in GUI to check Roll orientation).

Current Preview Modes
Mach1 Spatial
Mach1 Horizon
Mach1 Horizon Pairs (both encodings)
Ambisonic ACNSN3D (without Youtube Binaural Filter)

Upcoming Preview Player Features

- **Playback Scrubhead / Seeking:** Allows user to seek to specific time locations in video/audio.
- **Youtube Binaural Filter:** Allows user to review the current binaural filter applied to the output stereo when playing back on Youtube.

Upcoming Features

- **Master Video Transcoding:** Encourages users to start with a single preferred master video so that M1Transcoder can transcode and encode the correct preferred audio & video settings to each target platform.

- **Batch Transcoding:** User sets up their target app/platforms and run the transcoder process once to output multiple files for direct upload.