

HANDS ON AV DIGITIZATION

Presented by: Morgan Oscar Morel
Video Lab Supervisor / Library of Congress

<https://rb.gy/i3qht>

Workshop Schedule



Day 2: Performing AV Digitization

August 19 1pm-5pm

1:00 pm - Welcome from People's Media Record

1:15 pm - Start running some tapes

1:25 pm - Working with tapes and decks

1:35 pm - VHS Digitization

2:00 pm - **5 Minute Break**

2:05 pm - DV Migration

2:30 pm - DVD Migration

2:50 pm - **10 Minute Break**

3:00 pm - Hands-On Digitization and Migration

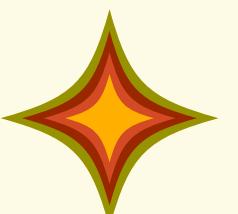
4:10 pm - **5 Minute Break**

4:15 pm - Creating Access Files

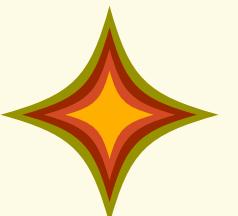
4:45 pm - Closing from People's Media Record



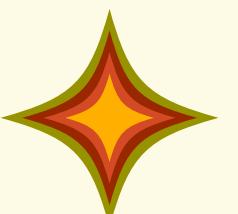
DAY TWO PURPOSE



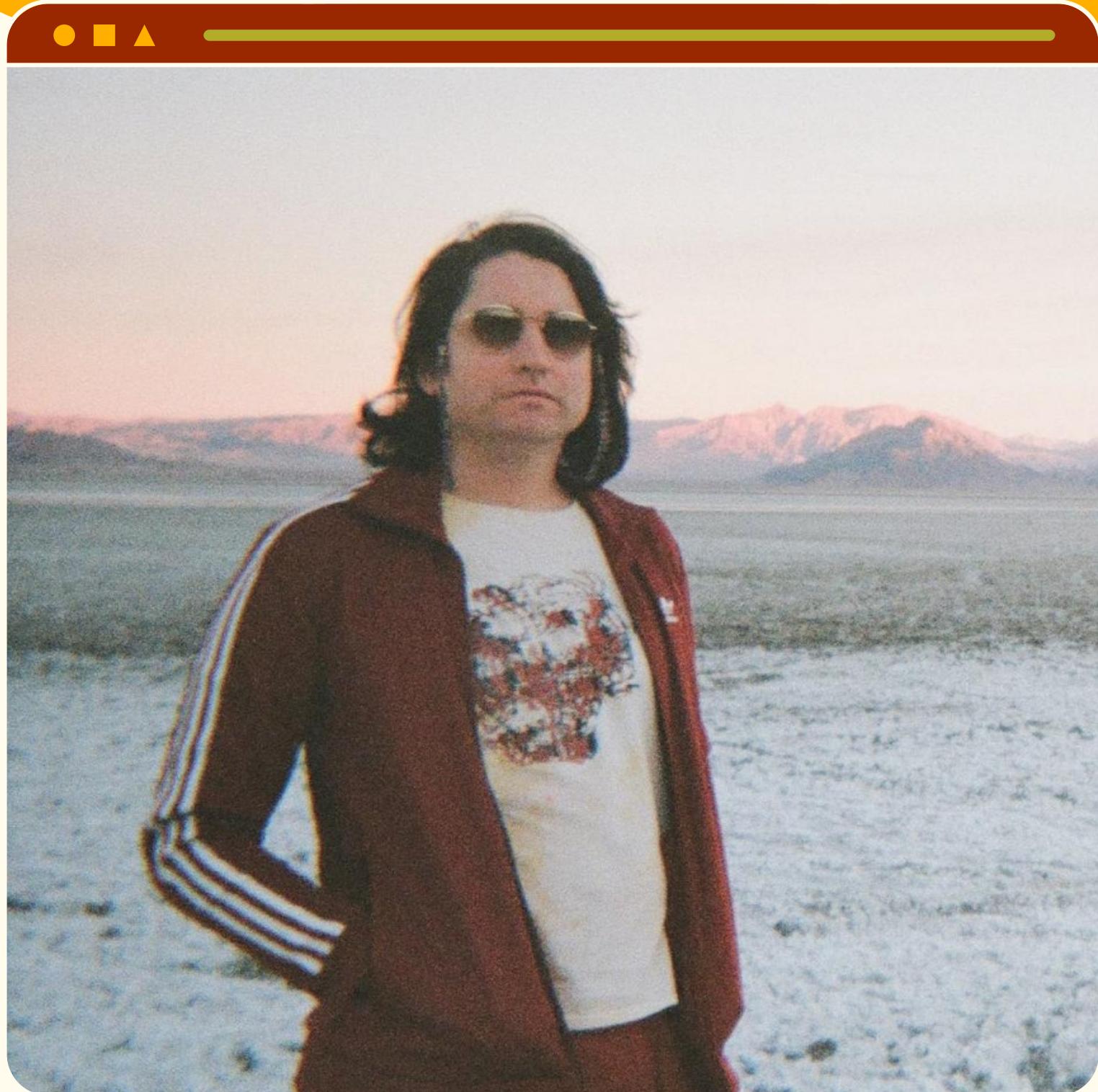
To give you hands-on experience digitizing and migrating audiovisual materials



To familiarize you with the "tools of the trade" for audiovisual digitization and migration



To give you the opportunity to digitize and migrate at least one tape and at least one DVD



HI, I'M MORGAN!

- Video Lab Supervisor at the Library of Congress
- 13 years of preservation tape-based media
- I'm a huge nerd for video preservation technology and education, and just teaching a slice of it in this workshop
- please don't be scared to reach out with any questions!



**GETTING TAPES
UP AND
RUNNING**



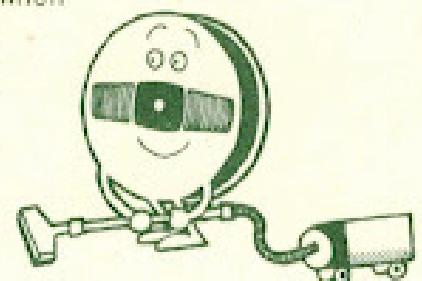
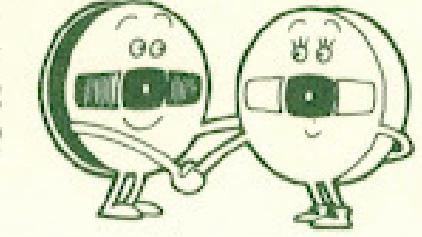
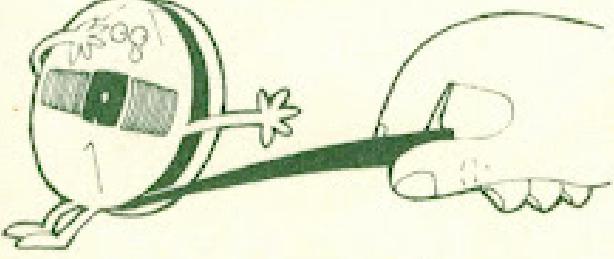
WORKING WITH TAPES AND DECKS

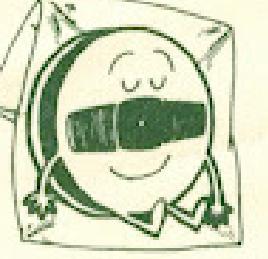
TAPE HANDLING

- Clean & Dry hands
- Do not touch the data side of the tape
- Use two hands when carrying
- Don't carry more than you can handle

SONY®

PROPER CARE OF VIDEO TAPES

1. Keep your VTR at the possible best condition when operating with tape.

2. Use the same size reels for both supplying and taking up the tape.

3. Refrain from touching the recording part of tape with fingers. Handle tape with care not to give dust or wrinkle on it.

4. Avoid to use the tape in the ambient of extremely high temperature and humidity.

5. After use repack the tape in case and keep it in normal ambient condition.

6. The shiny side of the tape is the magnetic coating surface. Therefore, when splicing tape press a piece of splicing tape over the dull side of the video tape.

2-454-007-02

WATCH OUT FOR MOLD



- If you see mold wear a respirator and goggles
- Very few molds that grow on tapes will kill you, but why take the chance?

TAPE DECK BASICS

- Decks need care and maintenance to play tapes properly
- You'll need to open decks to clean them, but be careful!
- Not all decks can play all tapes, tape speeds and formats change









VHS DIGITIZATION

VHS DIGITIZATION EQUIPMENT



VHS DECK



MONITOR



CONVERTER



COMPUTER



VHS DECK

- Sony SVO-5800
- Plays back Standard Play only, no Long Play or Extended Play
- Hi-Fi and Linear Audio
- Built-in Processing Amp
- Build-In Time Base Corrector



VHS DECK

- Panasonic AG-1980
- Plays back all speeds
- Hi-Fi and Linear Audio
- Build-In Time Base Corrector



CRT MONITOR



- Plays back analog video in it's native form
- Interlaced
- Options for calibration
- Shows errors and details impossible to see on a computer screen

CONVERTER

- UltraStudio HD Mini
- Has Analog (composite) and SDI inputs
- Has audio inputs
- Has remote control
- Black Magic equipment is compatible with vrecord
- Connects to computer via Thunderbolt

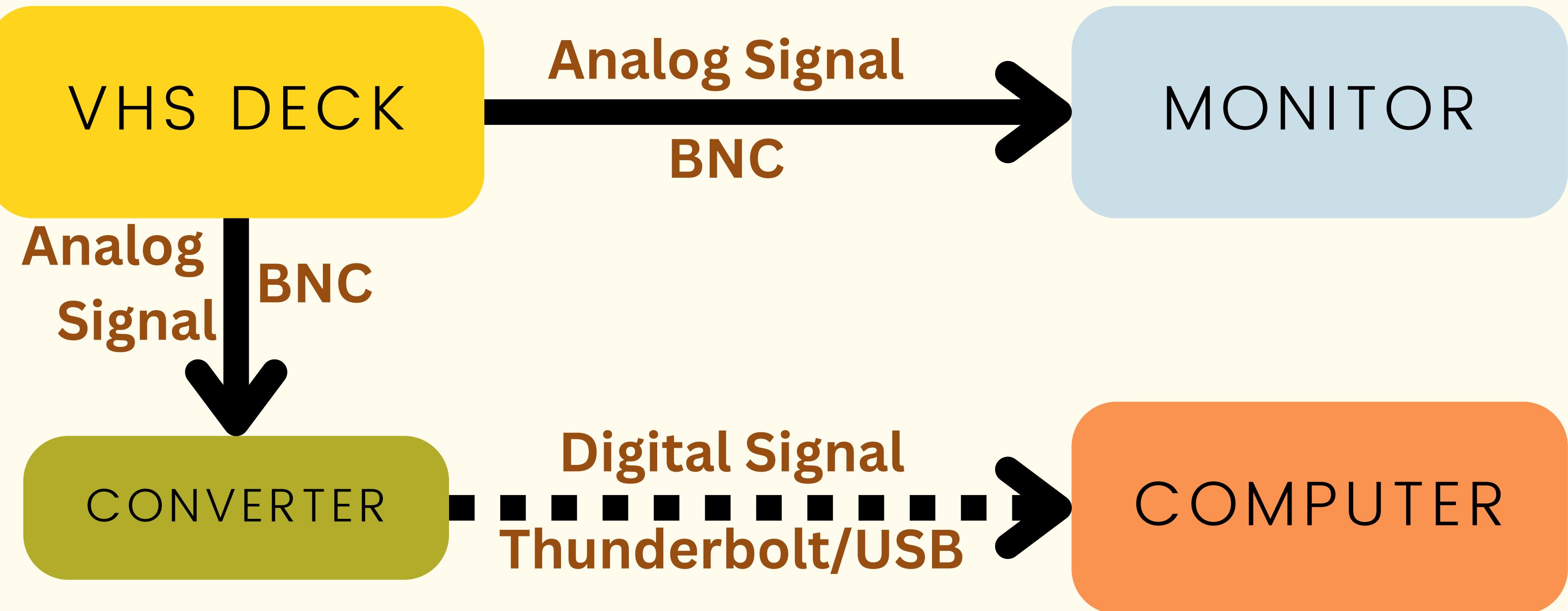


COMPUTER



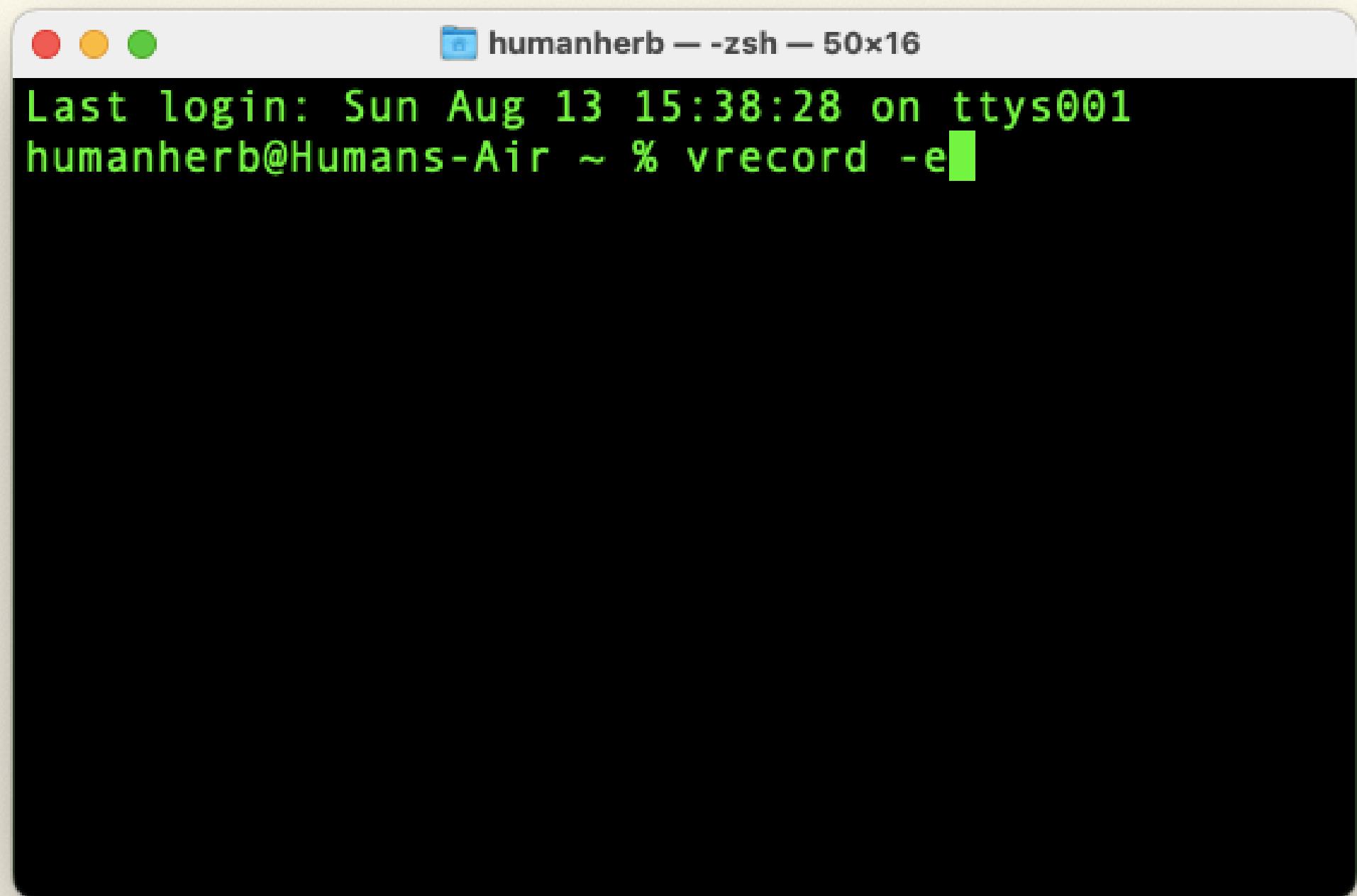
- Any Thunderbolt 3 equipped Mac will work
- Video files are HUGE so use an external drive.

VHS SIGNAL CHAIN



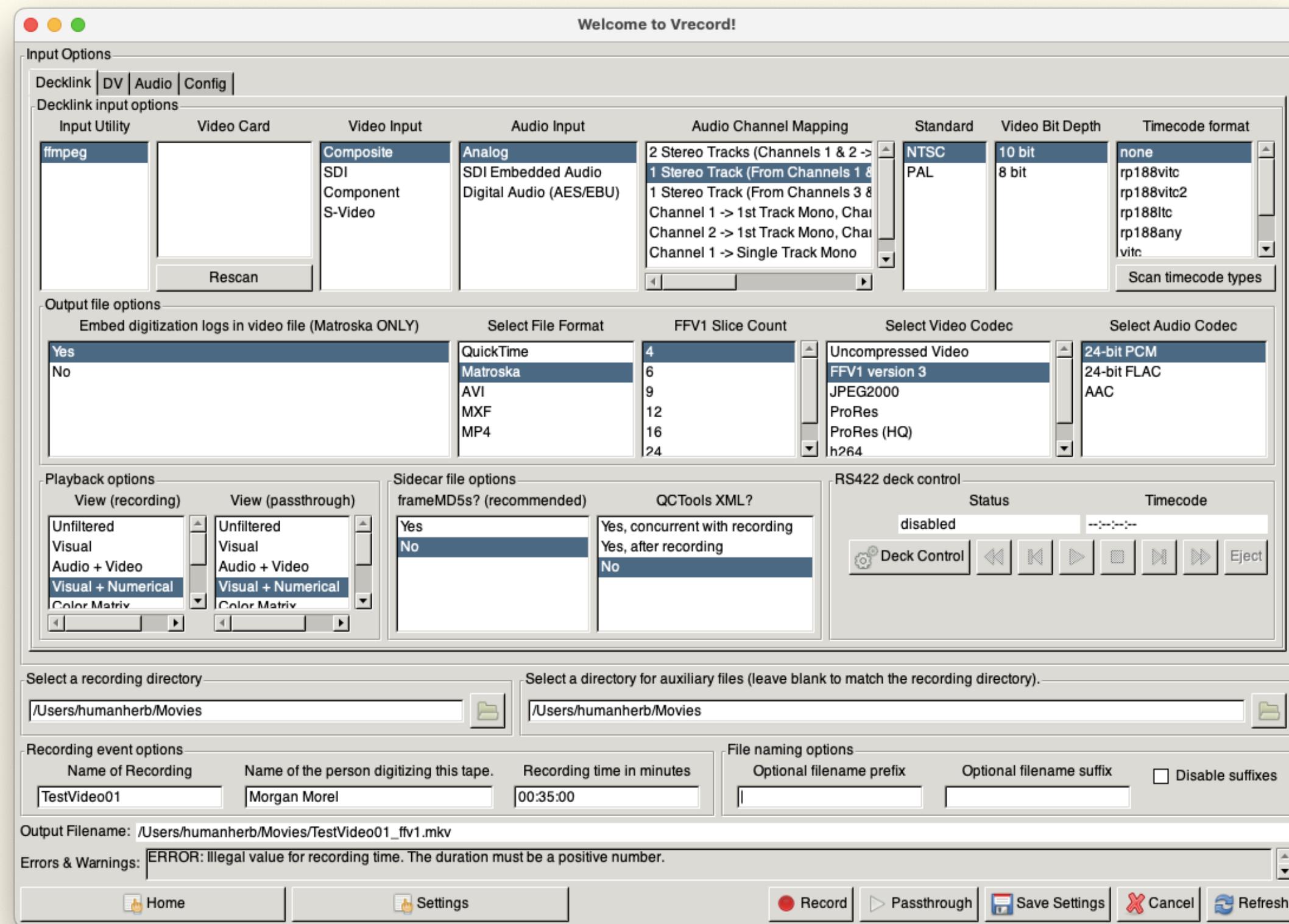
USING VRECORD

- Open Terminal
- type "vrecord -e"
- hit enter



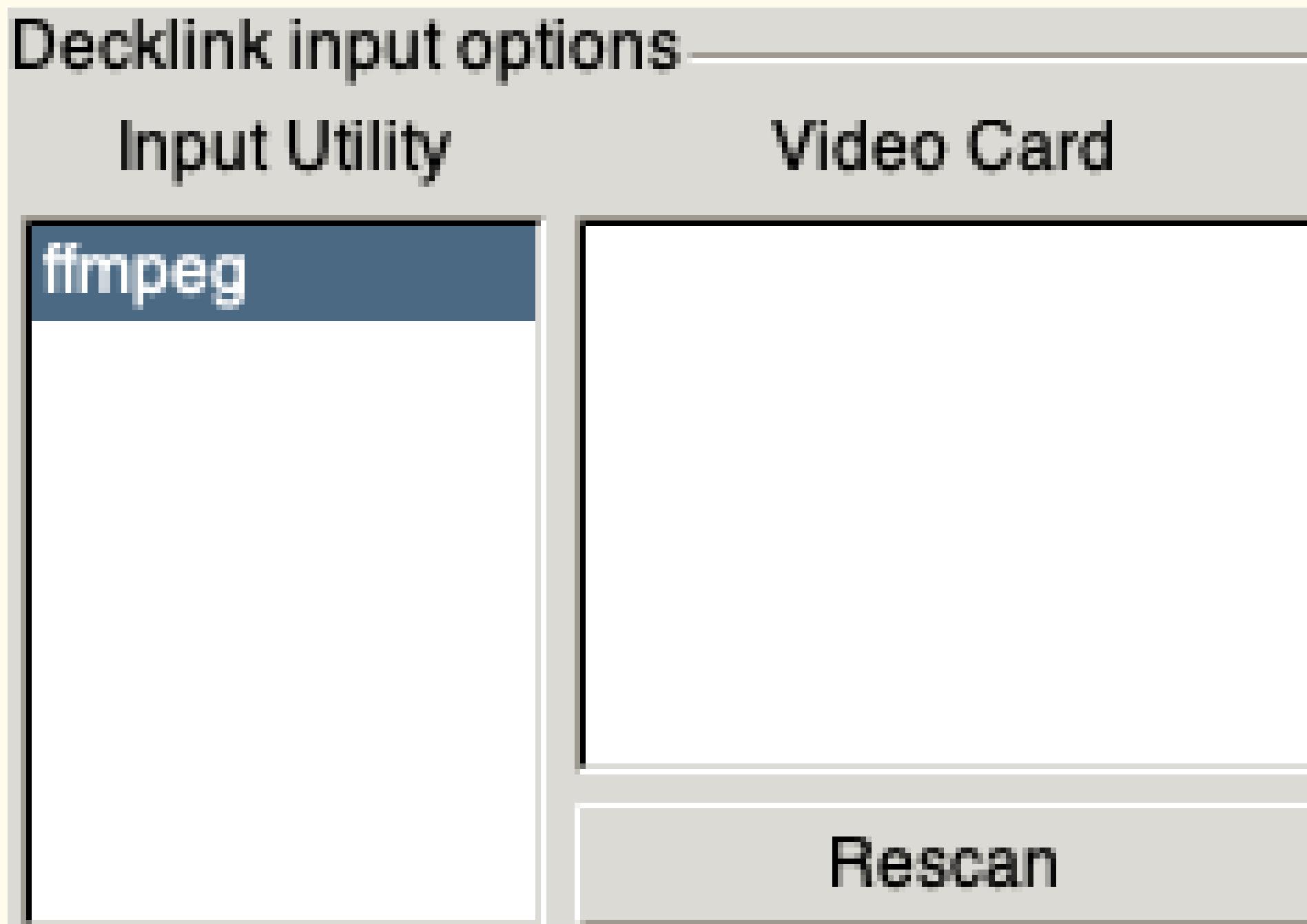
```
Last login: Sun Aug 13 15:38:28 on ttys001
humanherb@Humans-Air ~ % vrecord -e
```

VRECORD SETTINGS



INPUT SETTINGS

FFMPEG WILL
LIKELY BE THE
ONLY OPTION



SELECT
WHATEVER
CAPTURE
DEVICE
YOU'RE USING

INPUT SETTINGS

SET ACCORDING TO
THE VIDEO AND AUDIO
INPUTS YOU'RE
SENDING THE
CAPTURE DEVICE

Video Input

Composite
SDI
Component
S-Video

Audio Input

Analog
SDI Embedded Audio
Digital Audio (AES/EBU)

AUDIO CHANNEL MAPPING



SET ACCORDING TO THE
VIDEO TAPES YOU'RE
CAPTURING. MAKE SURE YOU
DON'T LOSE AUDIO
CHANNELS!



STANDARD & BIT DEPTH

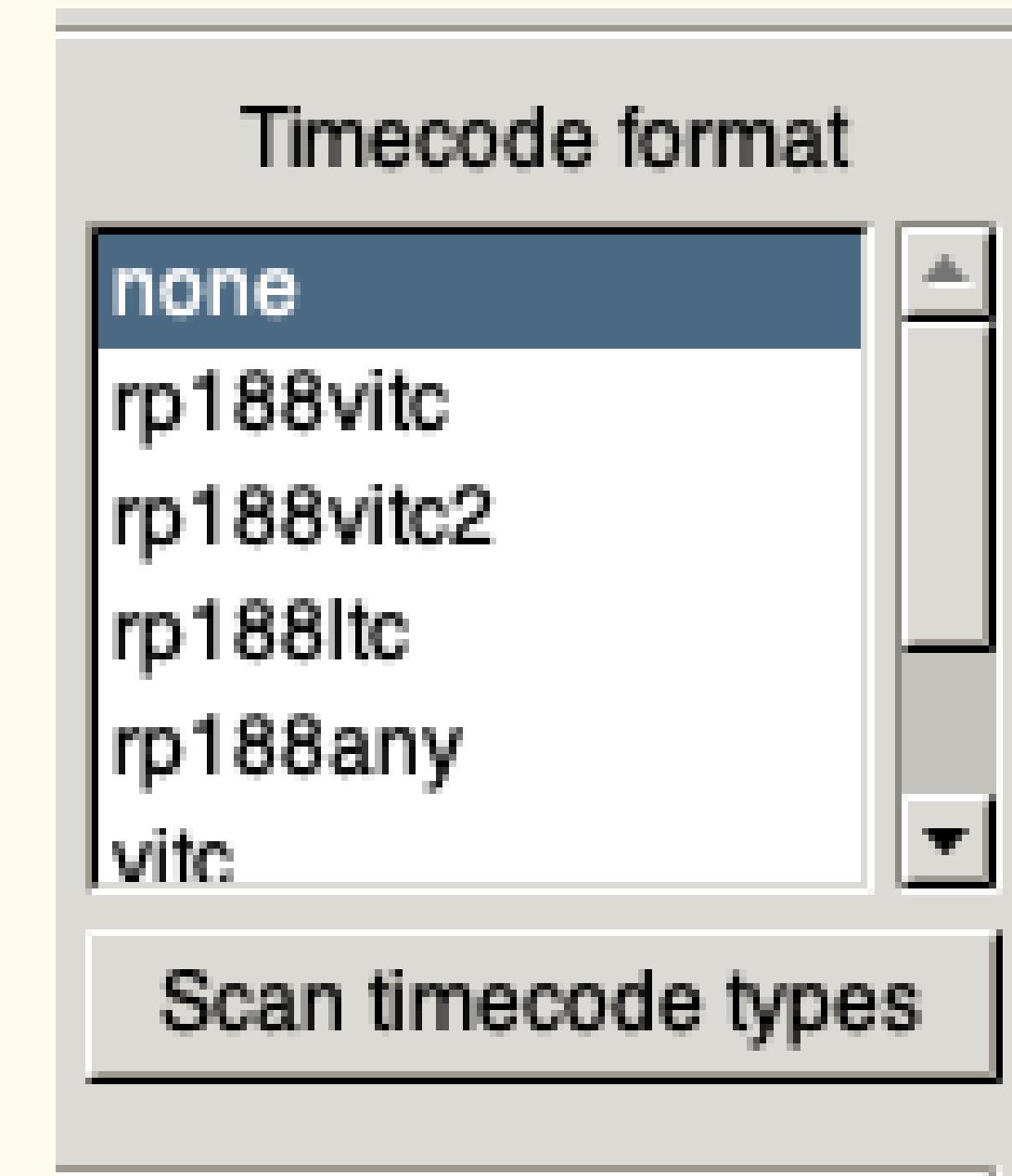
MOST TAPES
RECORDED IN
THE US ARE
NTSC

Standard	Video Bit Depth
NTSC	10 bit
PAL	8 bit

ALWAYS
CHOOSE 10
BIT IF YOU
HAVE THE
SPACE

TIMECODE FORMAT

LEAVE IT
NONE



ENCODING AND CONTAINER

Select File Format	FFV1 Slice Count	Select Video Codec
QuickTime	4	Uncompressed Video
Matroska	6	FFV1 version 3
AVI	9	JPEG2000
MXF	12	ProRes
MP4	16	ProRes (HQ)
	24	h264

SELECT CONTAINER

OPTION 1

MATROSKA

OPTION 2

QUICKTIME

INTERNAL CHECKSUMS

UP TO YOU

N/A

SELECT CONTAINER

FFV1 V3

UNCOMPRESSED

AUDIO ENCODING

PCM IS MOST
COMMON

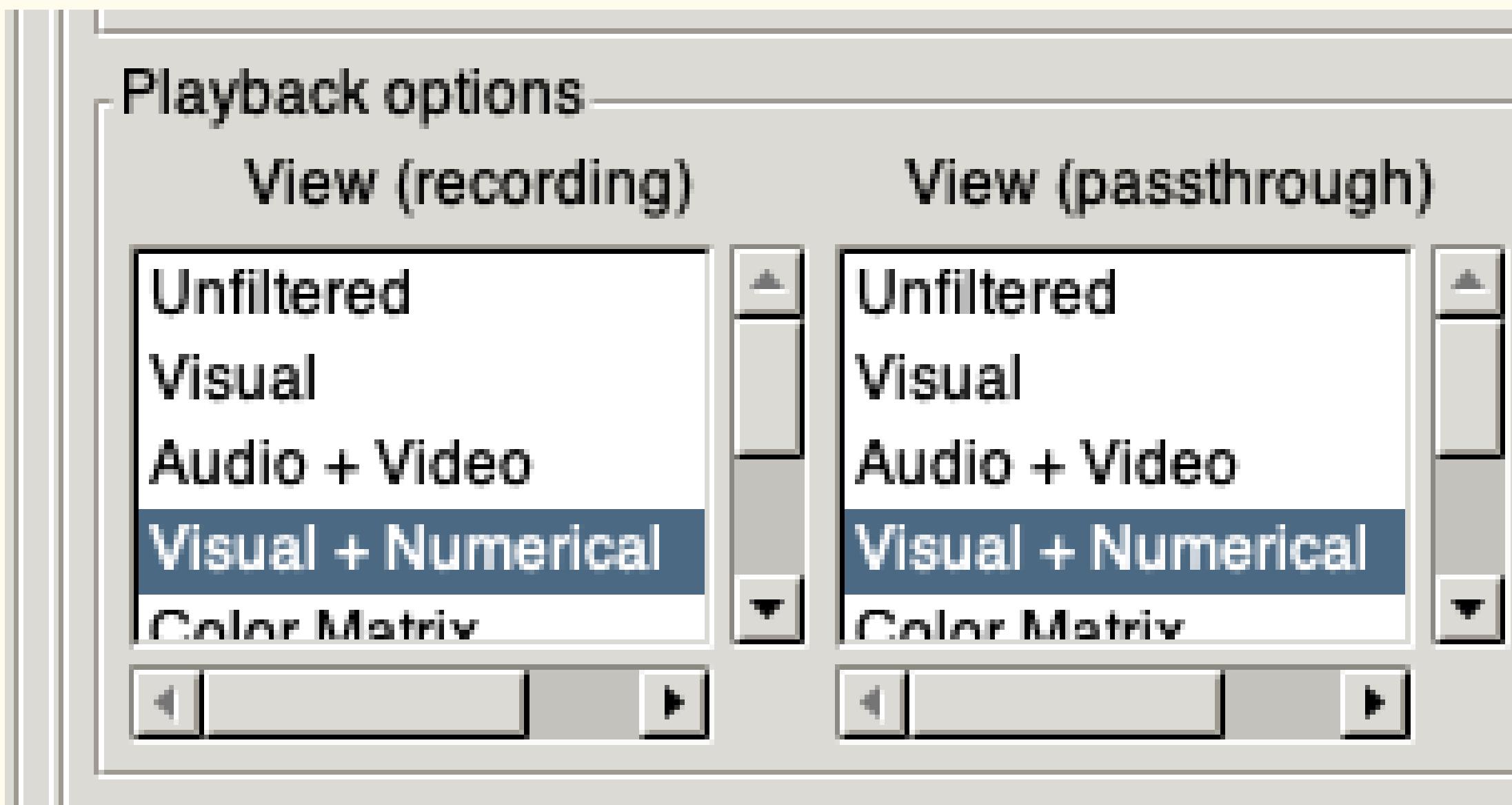
Select Audio Codec

24-bit PCM

24-bit FLAC

AAC

PLAYBACK OPTIONS



VISUAL +
NUMERICAL
GIVES BEST
INFO

SIDECAR FILE OPTIONS

Sidecar file options

frameMD5s? (recommended)

Yes

No

QCTools XML?

Yes, concurrent with recording

Yes, after recording

No

BOTH ARE GOOD, BUT TOUGH ON THE COMPUTER. ONLY
CHOOSE IF YOU HAVE THE PROCESSING POWER

RECORD OR PASSTHROUGH

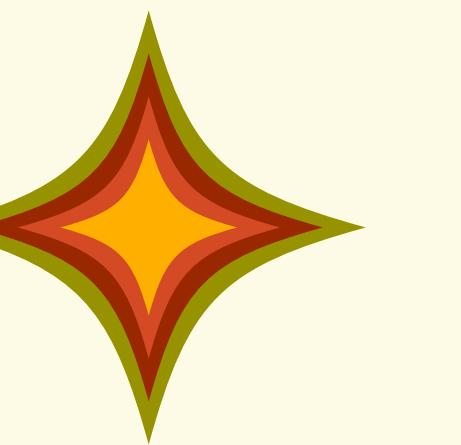
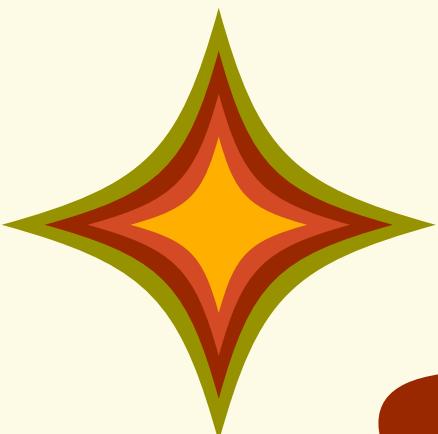


STARTS
RECORDING

SHOWS VIDEO
WITHOUT
RECORDING

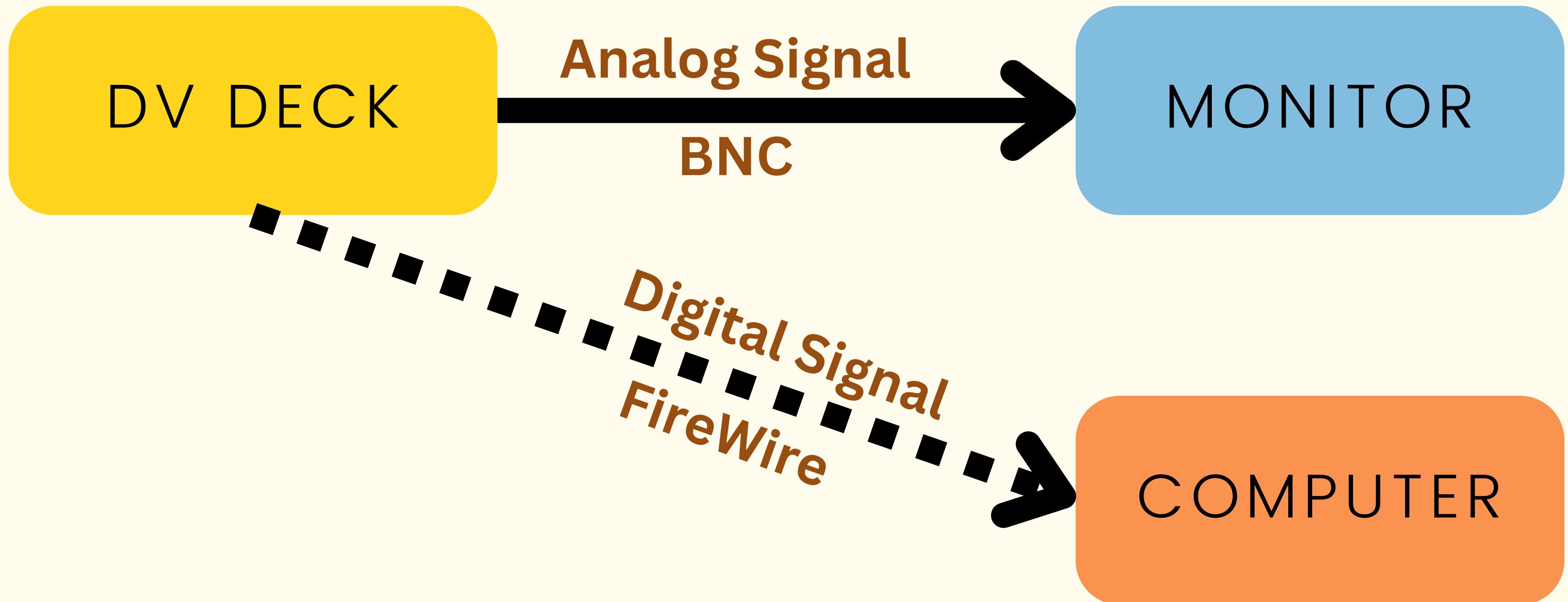
SAVES CONFIGURATION
FOR FUTURE TAPES

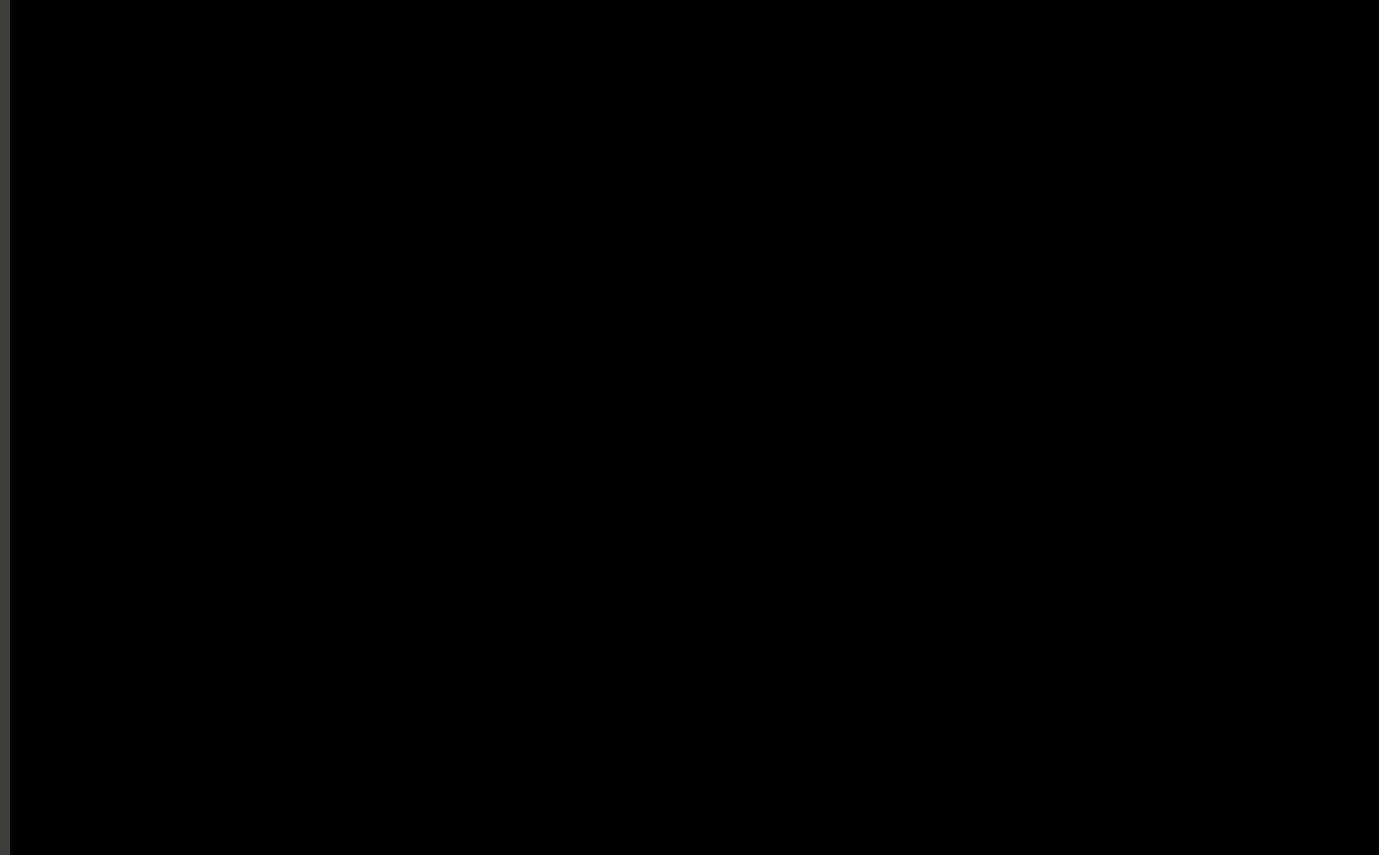
BREAK
TIME



DV MIGRATION

DV SIGNAL CHAIN







DVD / DISC MIGRATION

DISC SIGNAL CHAIN



DOWNLOAD MAKEMKV

Download Here

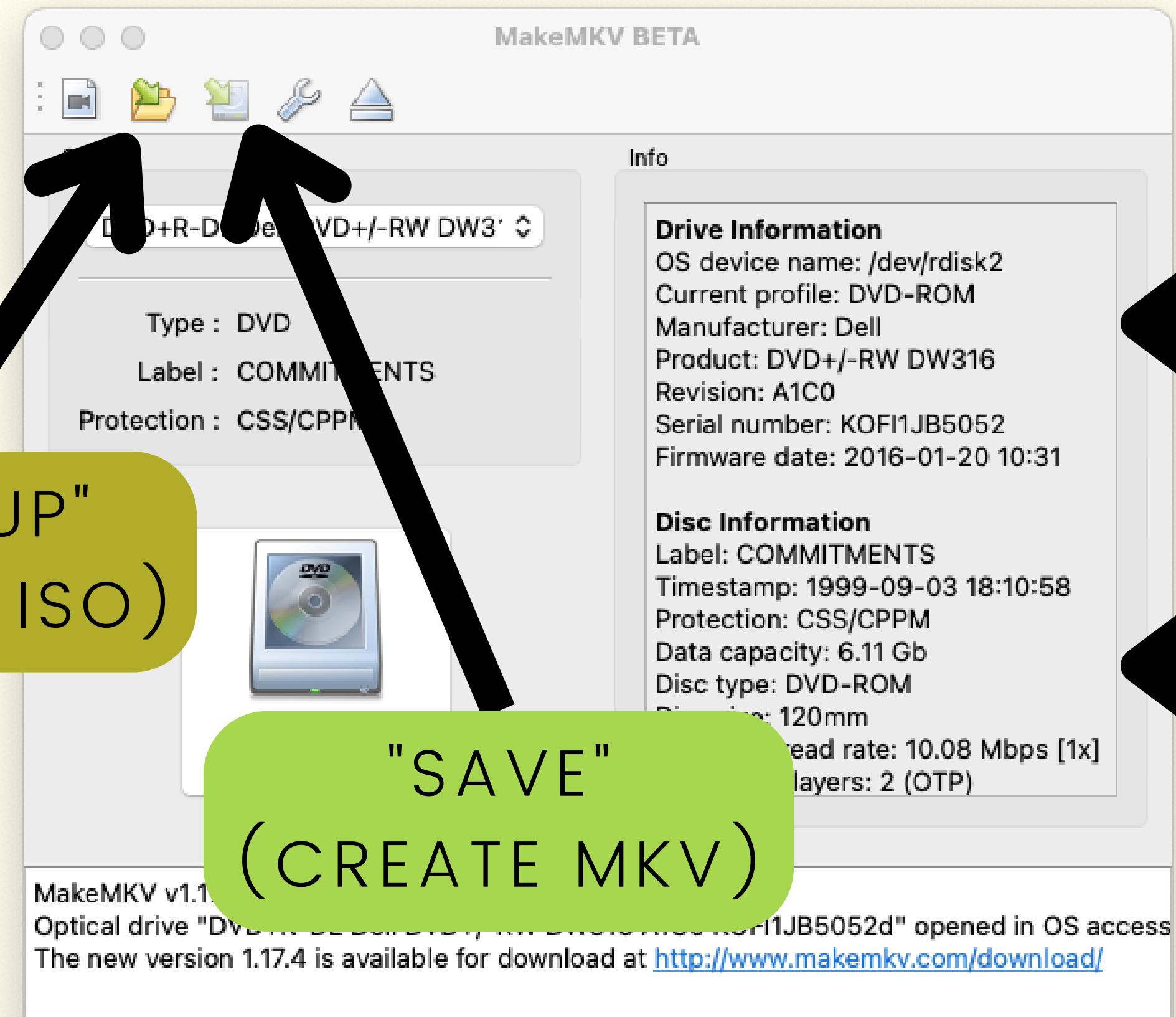
[HTTPS://MAKEMKV.COM/](https://makemkv.com/)

Get Beta License Here

[HTTPS://RB.GY/FDUBI](https://rb.gy/fdubi)

Or pay \$60 if you're using it commercially

USING MAKEMKV



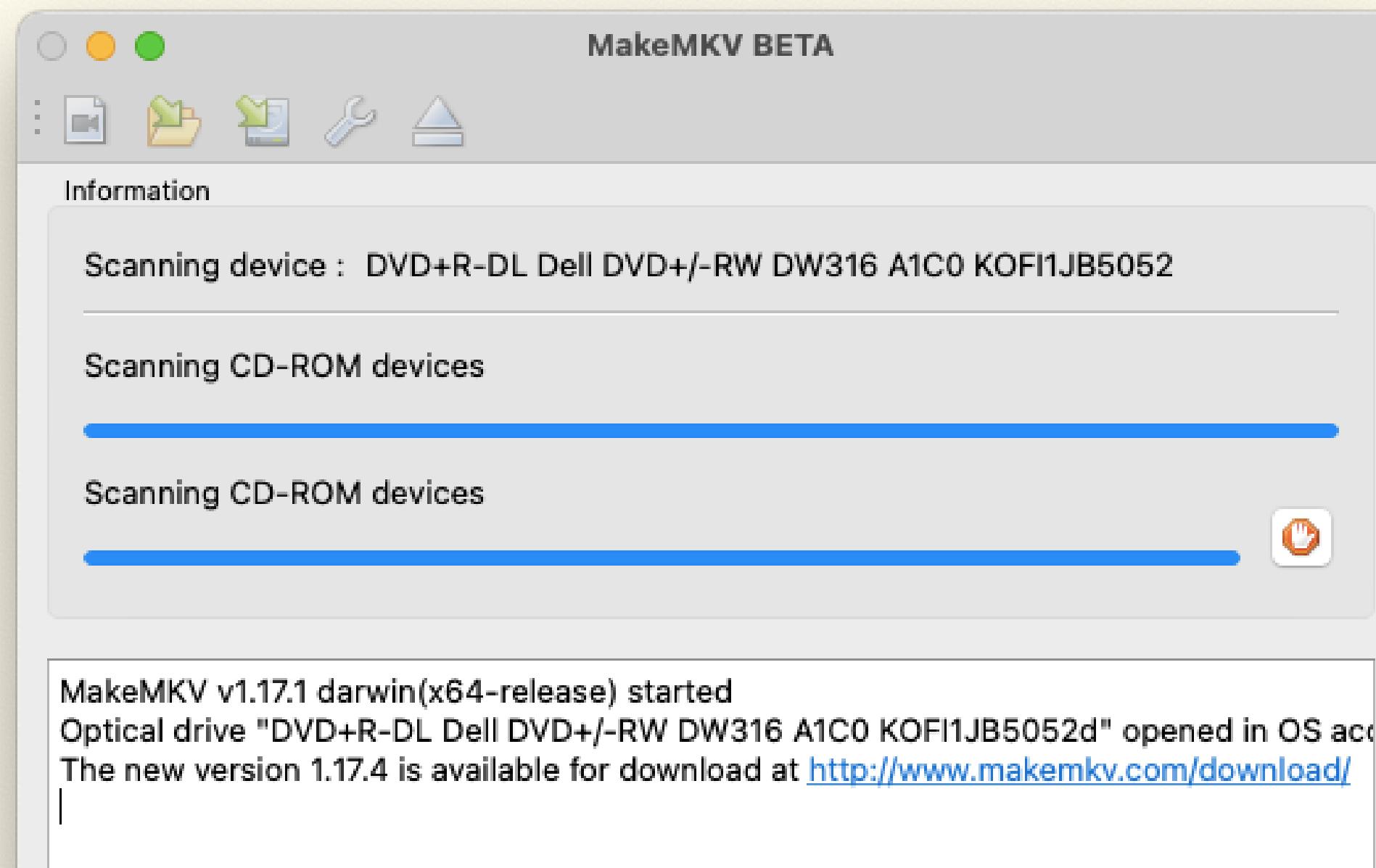
"BACKUP"
(CREATE ISO)

"SAVE"
(CREATE MKV)

DRIVE INFO

DISC INFO

USING MAKEMKV: BACKUP



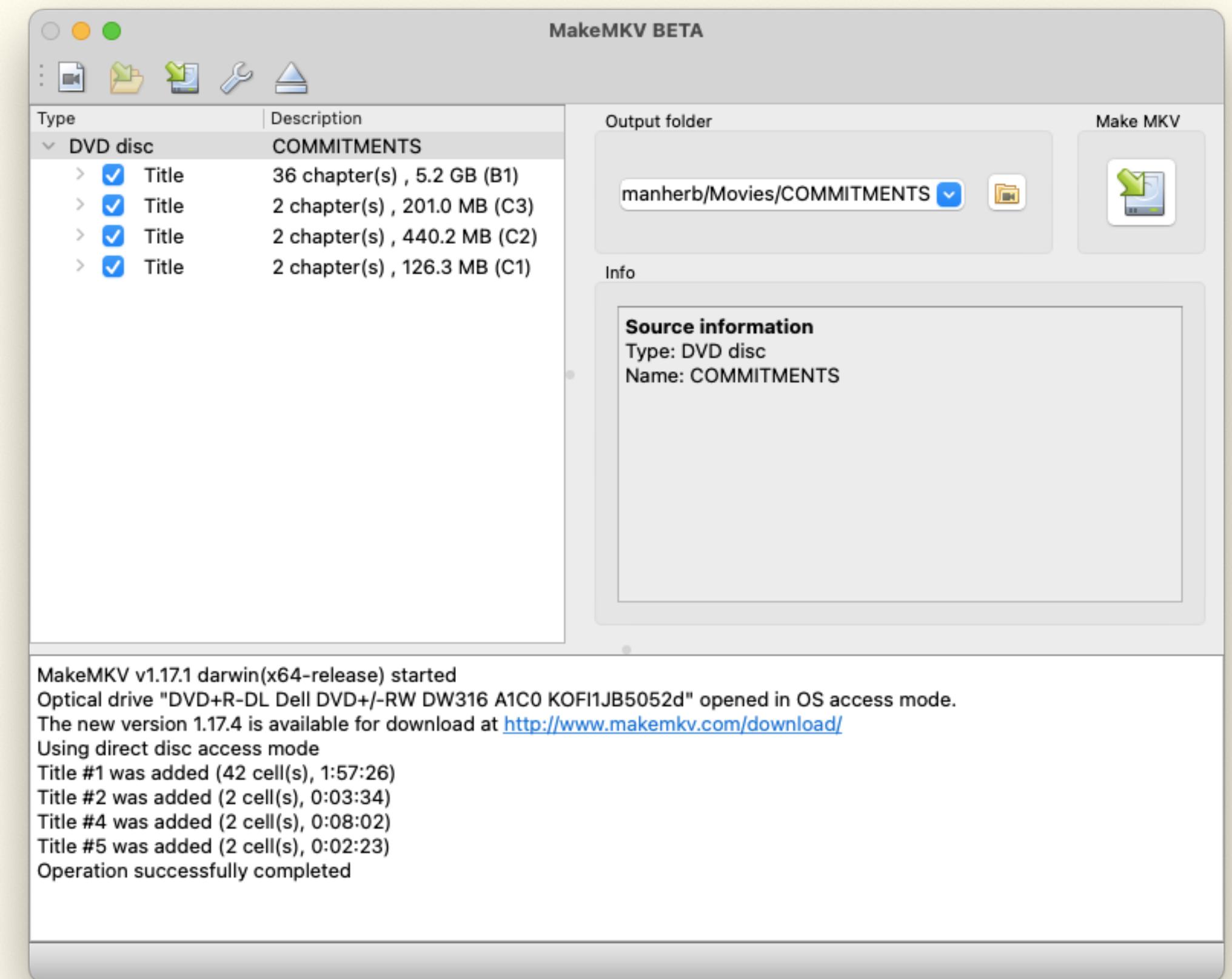
SIMPLE ENOUGH:
IT CREATES AN ISO OF
THE DISC

USING MAKEMKV: SAVE

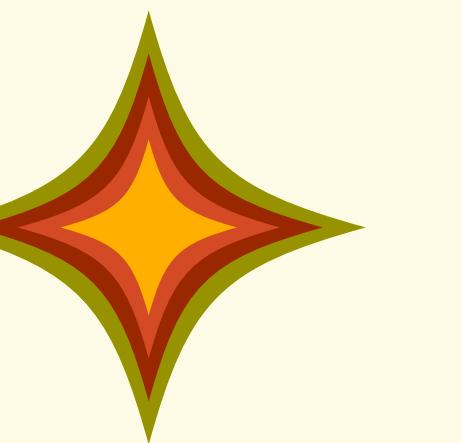
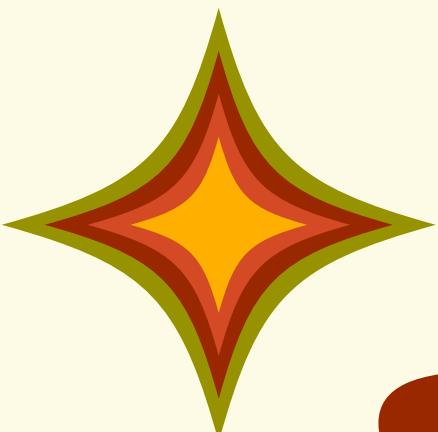
MORE COMPLEX:
CREATES AN MKV FILES
FOR EVERY "TITLE"

"TITLE" MEANS SELF-CONTAINED VIDEO.
ON A COMMERCIAL DVD THE FEATURE,
PREVIEWS, AND EXTRA FEATURES
COULD ALL BE SEPARATE TITLES

THE CREATED MKV'S ARE THE ORIGINAL
ENCODINGS ON THE DVD IN AN MKV
CONTAINER. THEY LIKELY WON'T PLAY
BACK IN ANYTHING BUT VLC



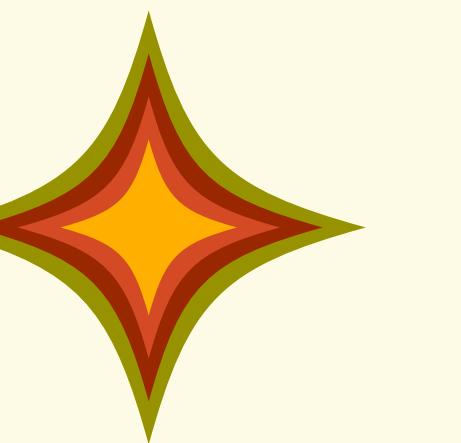
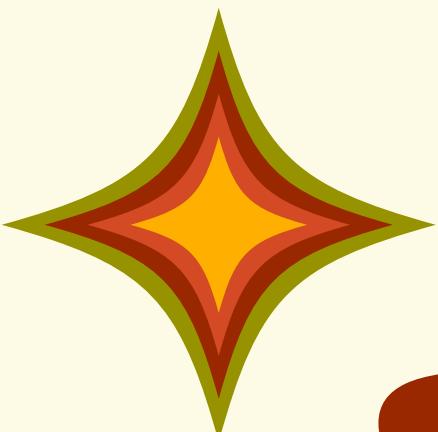
BREAK
TIME





HANDS-ON DIGITIZATION AND MIGRATION

BREAK
TIME





ACCESS FILES CREATION

HANDBREAK SETTINGS

MysteryFile03.mkv

Open Source Add To Queue Start Pause Presets Preview Queue Activity

Source: MysteryFile03, 720x486 (648x486), 29.97 FPS, SDR (10-bit 4:2:2, 6-1-6), 1 audio track

Title: 1 - 00:00:03 - MysteryFile03 Angle: 1 Range: Chapters 1 - 1 Duration: 00:00:03

Preset: Fast 480p30 (Modified) Reload Save New Preset...

Summary Dimensions Filters Video Audio Subtitles Chapters

Format: MP4
 Passthru Common Metadata
 Web Optimized ←
 Align A/V Start
 iPod 5G Support

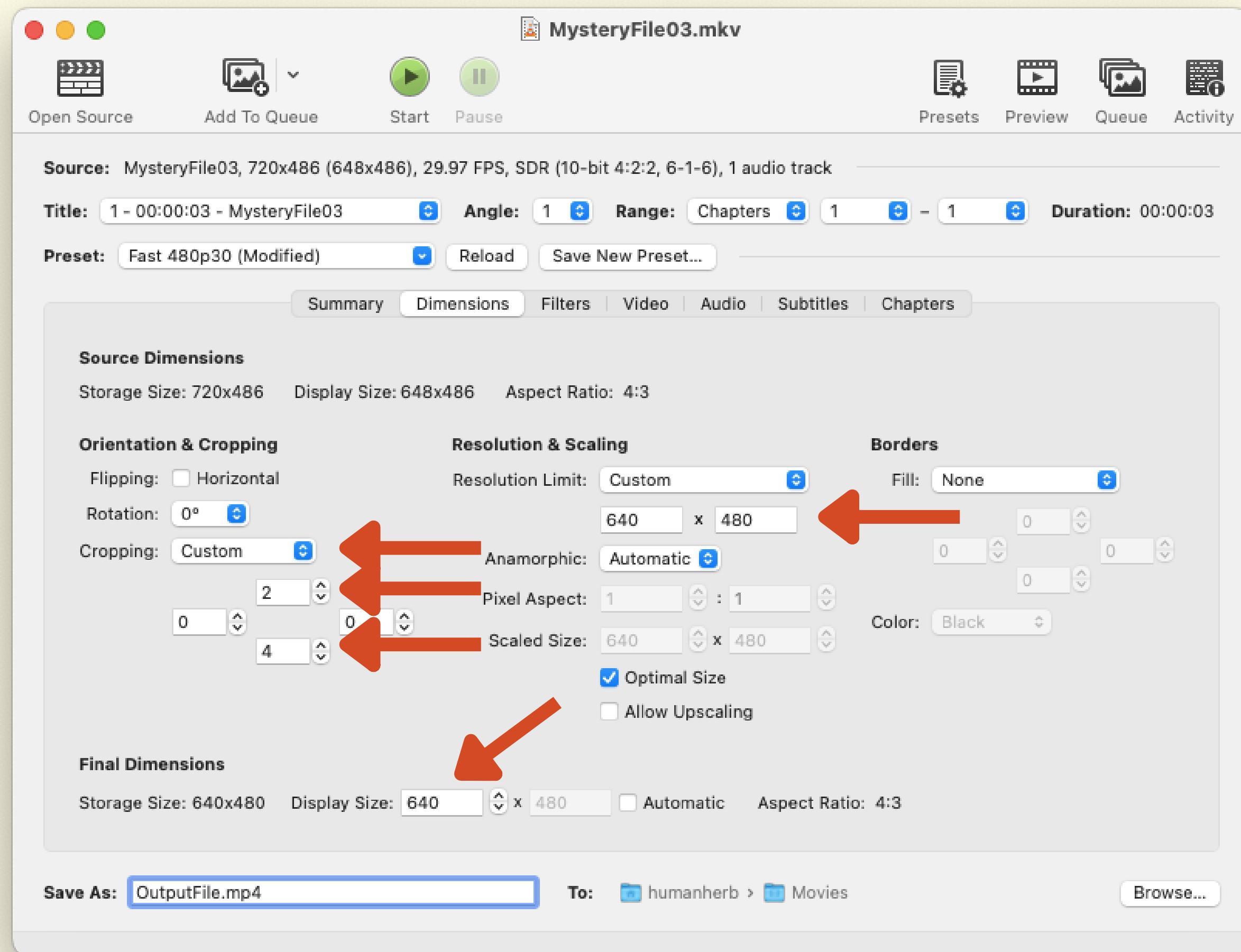
Tracks: H.264 (x264), 29.97 FPS PFR AAC (CoreAudio), Stereo

Filters: Comb Detect, Yadif

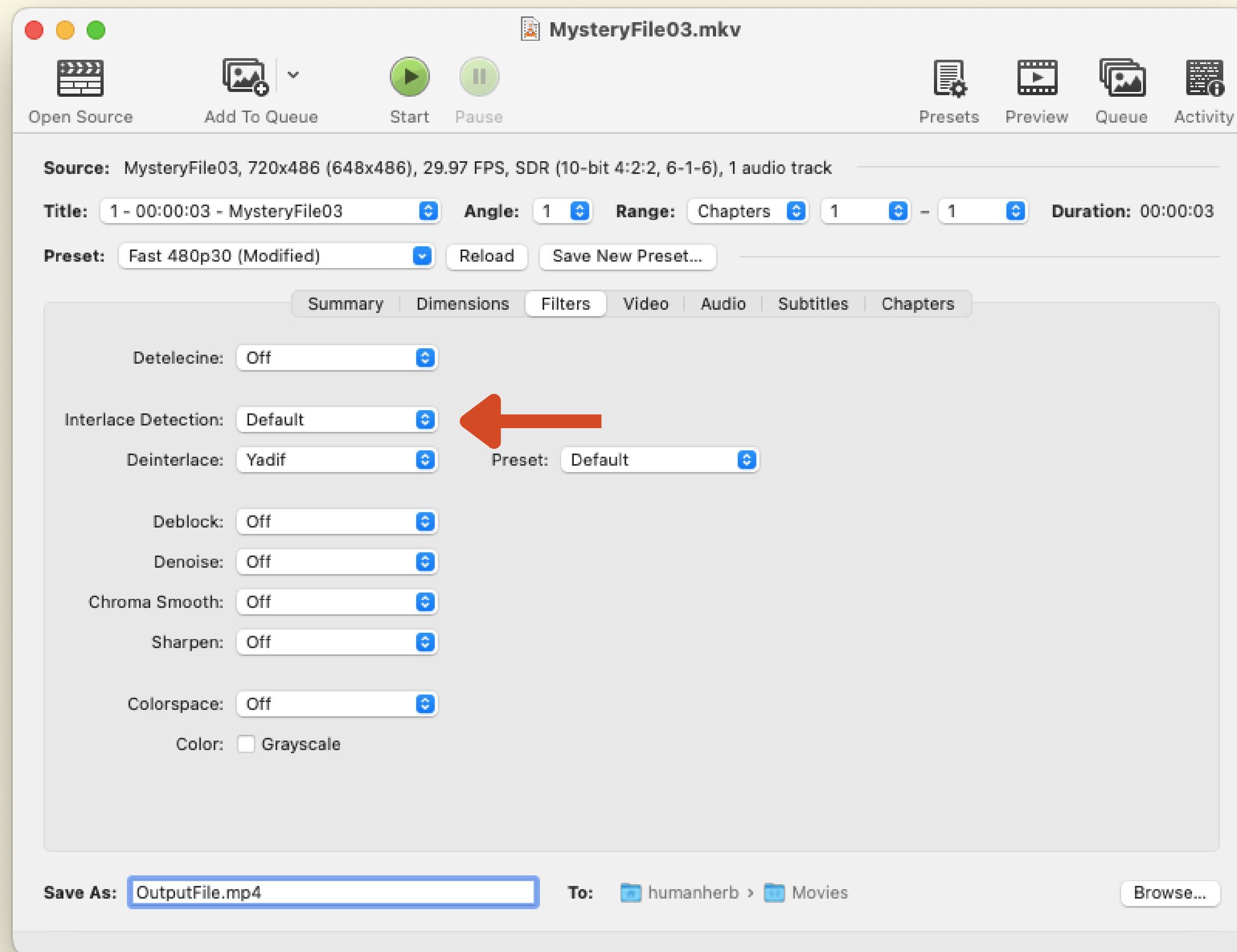
Size: 640x480

Save As: To: humanherb > Movies

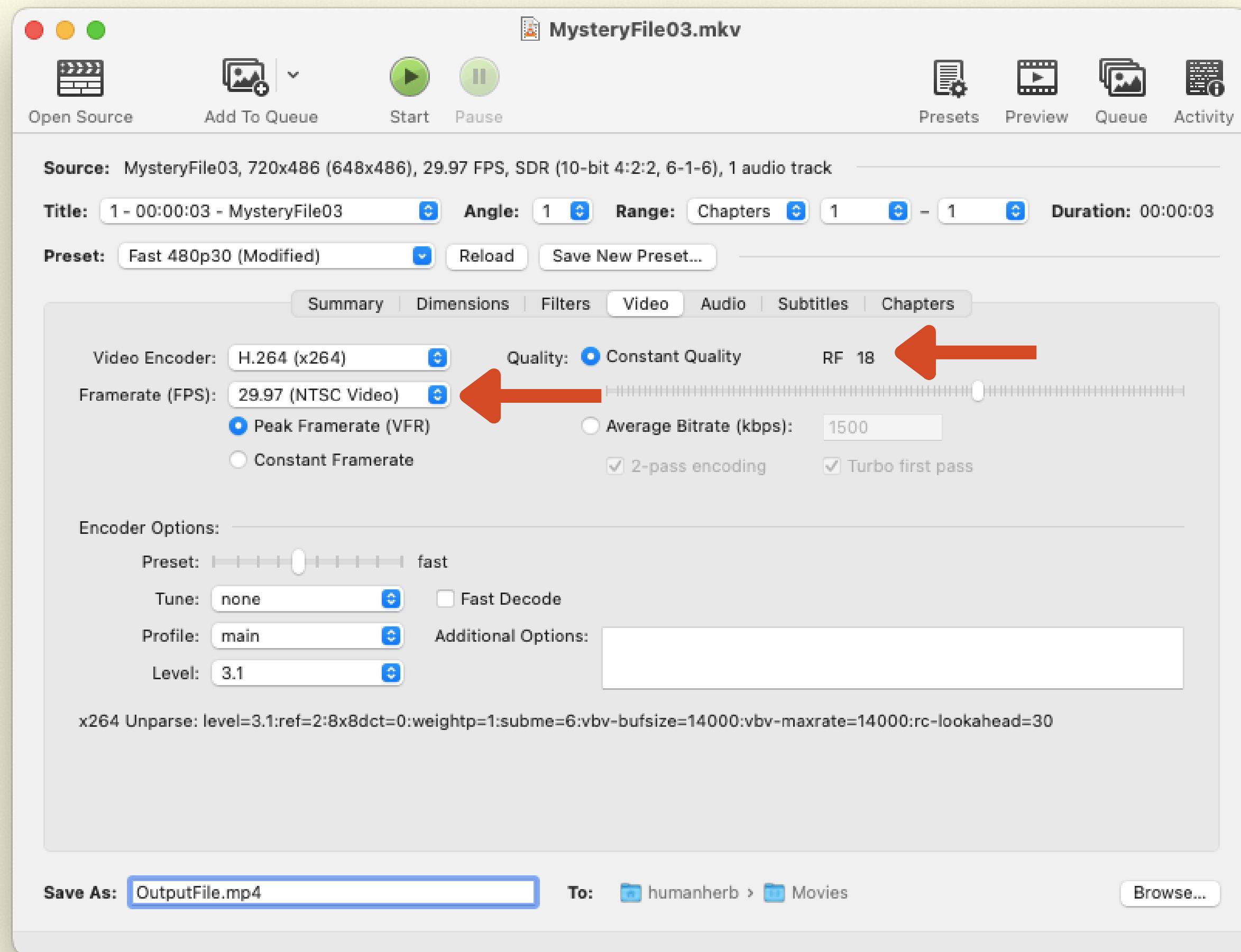
HANDBREAK SETTINGS



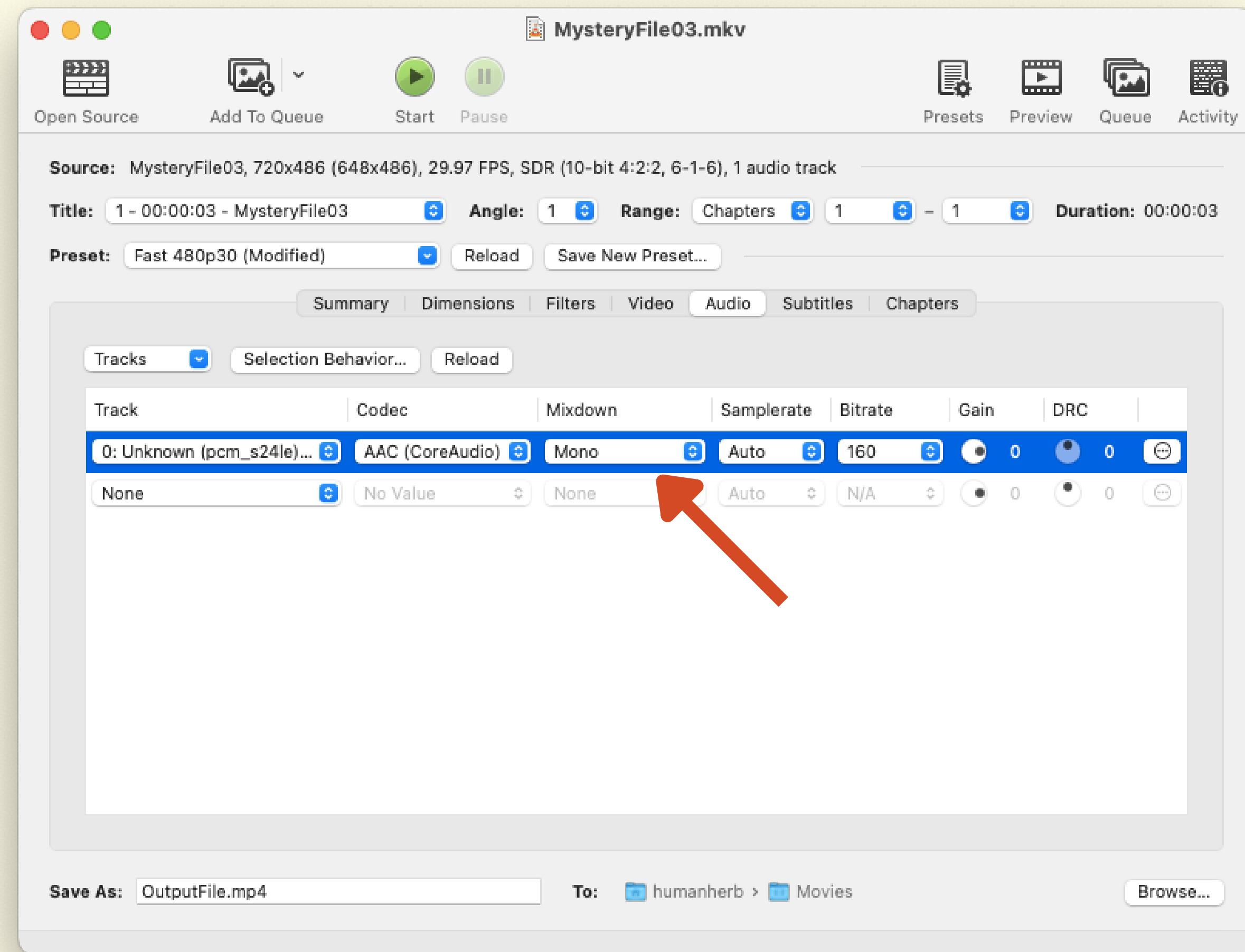
HANDBREAK SETTINGS



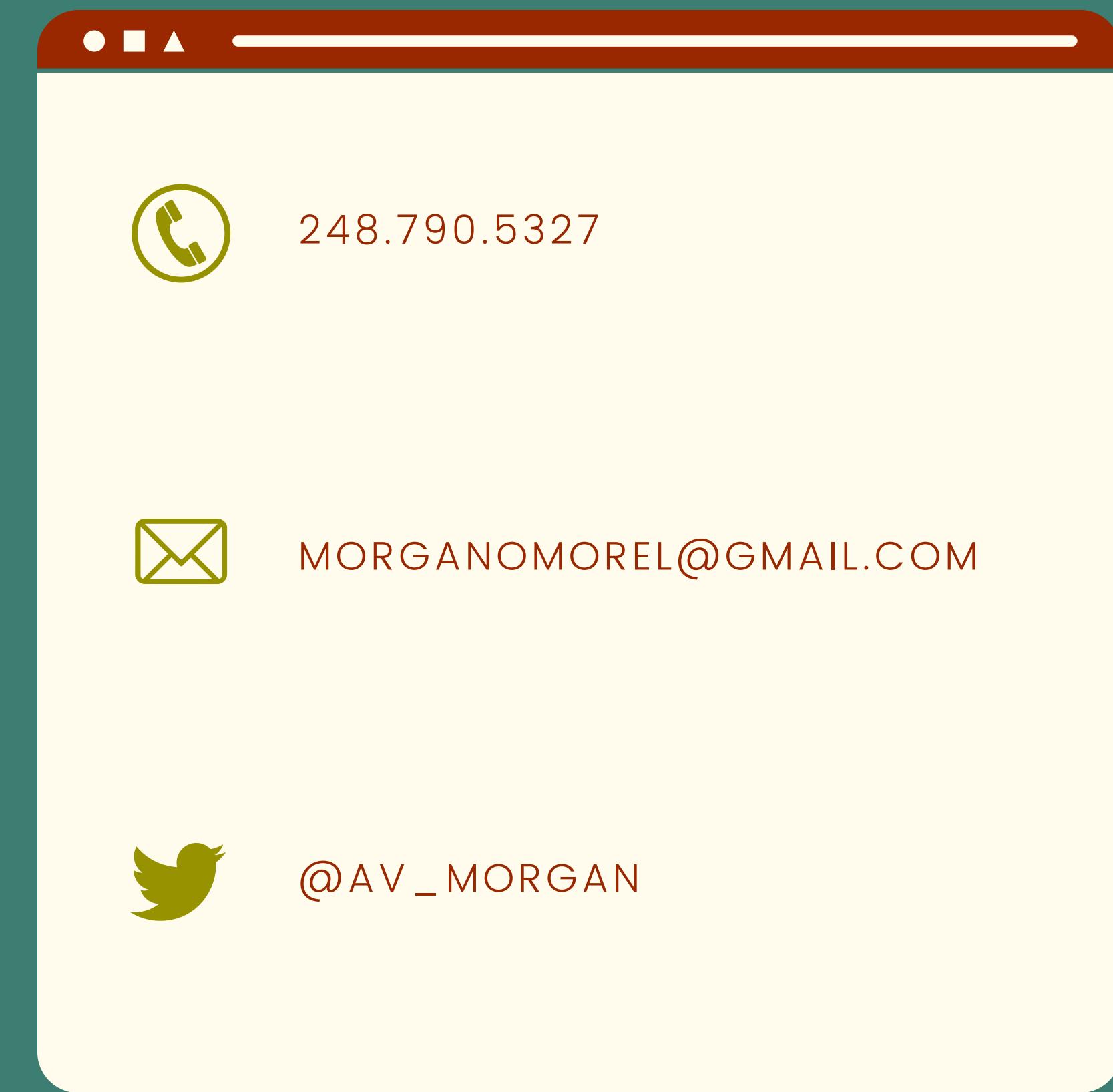
HANDBREAK SETTINGS

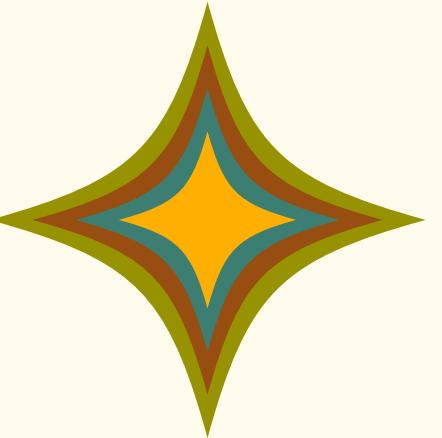


HANDBREAK SETTINGS



CONTACT ME





THANK YOU!

