

# PREPARING FOR VIDEO DIGITIZATION

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

[tinyurl.com/2fe6btvt](http://tinyurl.com/2fe6btvt)

# Workshop Schedule



**Day 1: Preparing for Video Digitization**  
**August 10th, 6:30-8:30pm**

**6:30 pm - Welcome from People's Media Record**

**6:45 pm - Workshop time block 1**

**7:15 pm - 5 minute break**

**7:20 pm - Workshop Time Block 2**

**7:50 pm - 5 minute break**

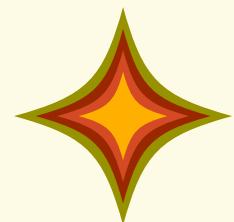
**7:55 pm - Workshop Time Block 3**

**8:20 pm - Closing from People's Media Record**

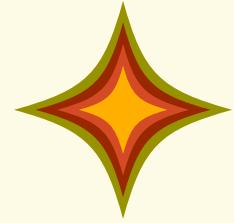
**Day 2: Performing AV Digitization**  
**August 19 1pm-5pm**

# DAY ONE OUTLINE

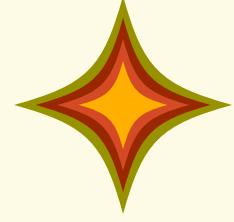
## Block 1



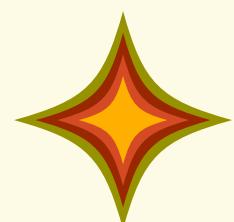
Introduction



Preservation  
Fundamentals

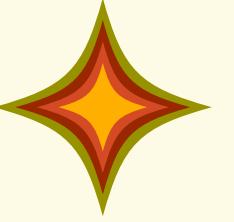


Exercise 1

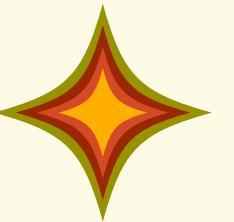


Break

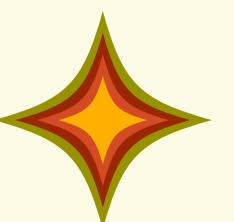
## Block 2



Physical Media  
Format

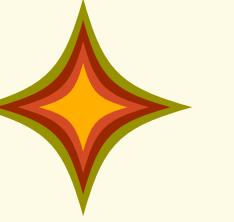


Preservation  
Formats

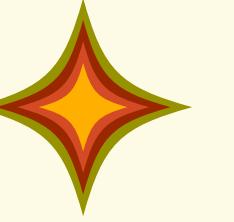


Exercise 2

## Block 2



Preservation  
Software



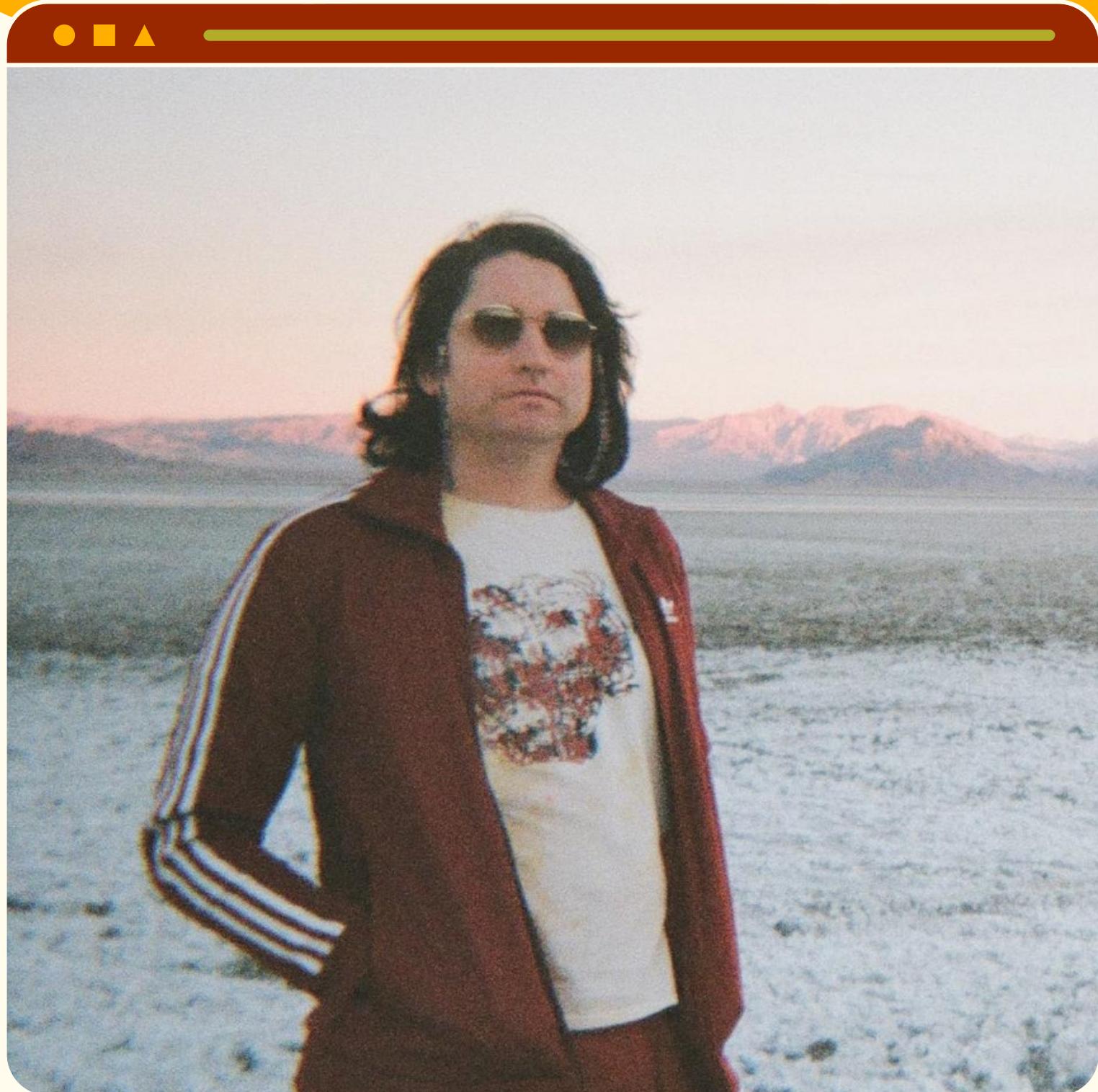
Exercise 3





# DAY ONE PURPOSE

- ★ To give you an understanding of the basic concepts involved in digitization for preservation
- ★ To prepare you for digitizing and preserving your own materials on Day Two
- ★ It's a lot of information! Ask Questions if you need



# 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!



**WHO ARE YOU?**



# PRESERVATION FUNDAMENTALS

# PRESERVATION FUNDAMENTALS

- ❖ Degradation and Obsolescence
- ❖ Analog vs Digital
- ❖ Digitization vs Migration
- ❖ Streams
- ❖ Encoding vs Container
- ❖ Types of Loss
- ❖ Compression
- ❖ Interlacing
- ❖ Resolution
- ❖ Checksums and Fixity
- ❖ Preservation vs Access

THESE FUNDAMENTALS WILL HELP YOU UNDERSTAND THE NUANCES OF DIGITIZATION AND HOW DIGITAL FILES FUNCTION TO PRESERVE PHYSICAL MEDIA

# PRESERVATION FUNDAMENTALS

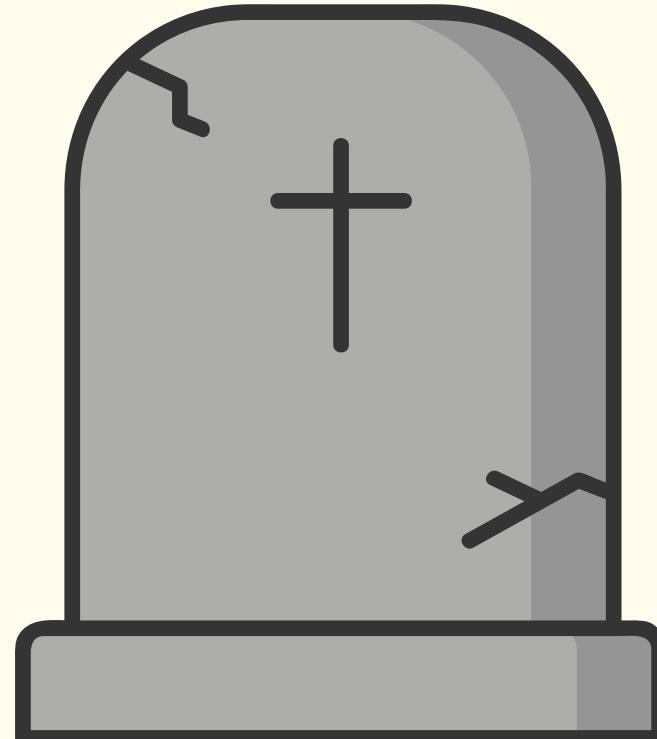
- Degradation and Obsolescence
- Analog vs Digital
- Digitization vs Migration
- Streams
- Encoding vs Container
- Types of Loss
- Compression

- Interlacing
- Resolution
- Checksums and Fixity
- Preservation vs Access

THESE CONCEPTS ARE  
DISCUSSED IN MORE DETAIL  
IN THE PREVIOUS TWO  
WORKSHOPS

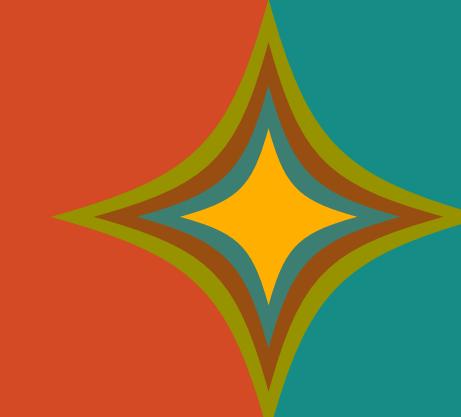
# DEGRADATION AND OBSOLESCENCE

ARCHIVAL TAPE MEDIA ARE ALL LONG PAST THEIR SHELF-LIFE. DAMAGED AND DEGRADED TAPES BECOME UNPLAYABLE

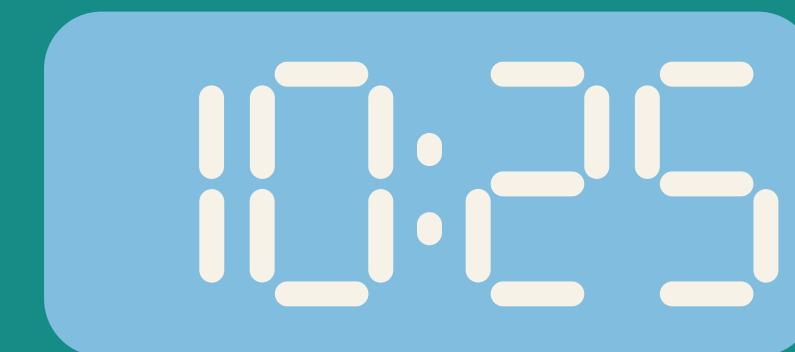
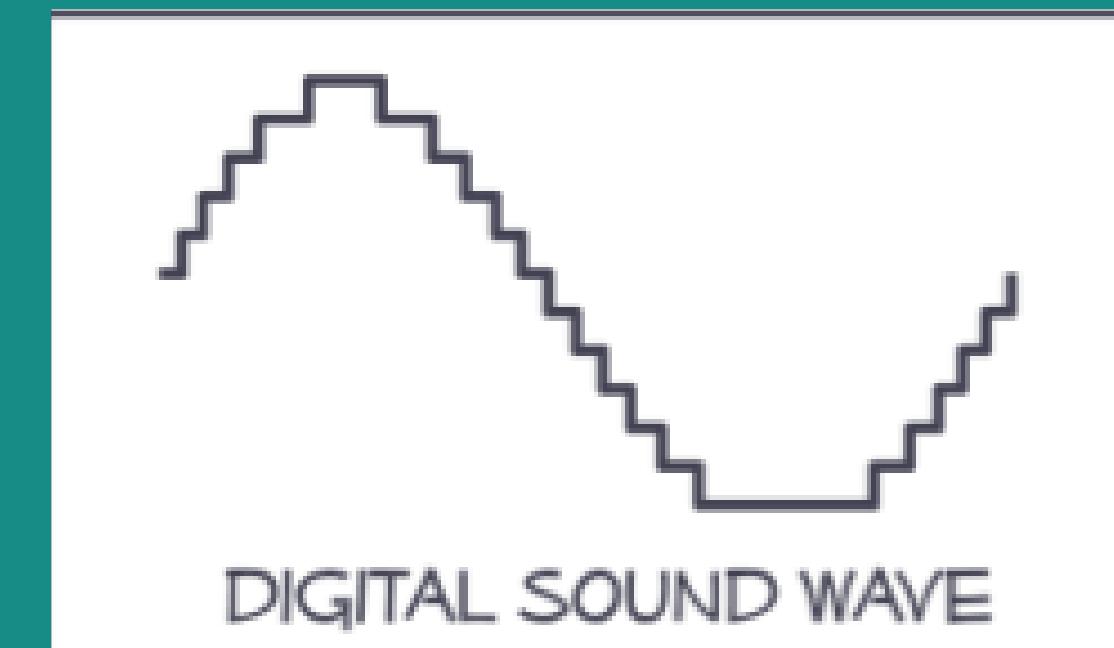


MANY VIDEO FORMATS RELY ON OBSOLETE TECHNOLOGY TO BE PLAYED BACK, AND THUS TO BE PRESERVED

# ANALOG

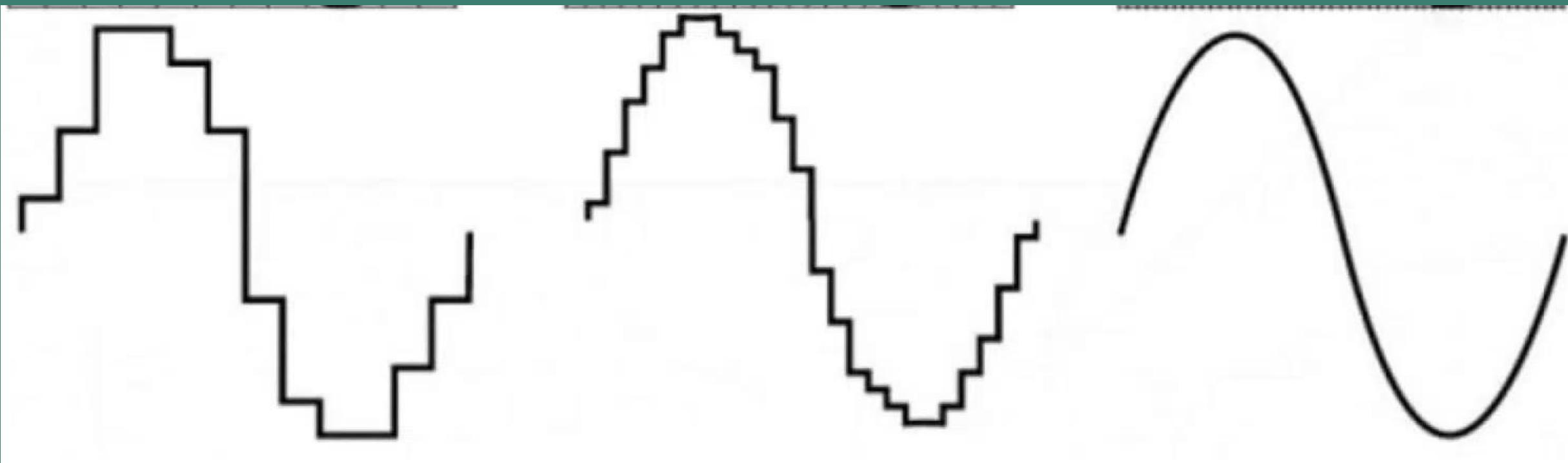
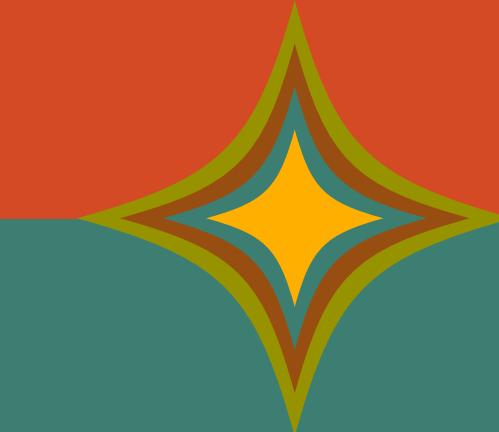
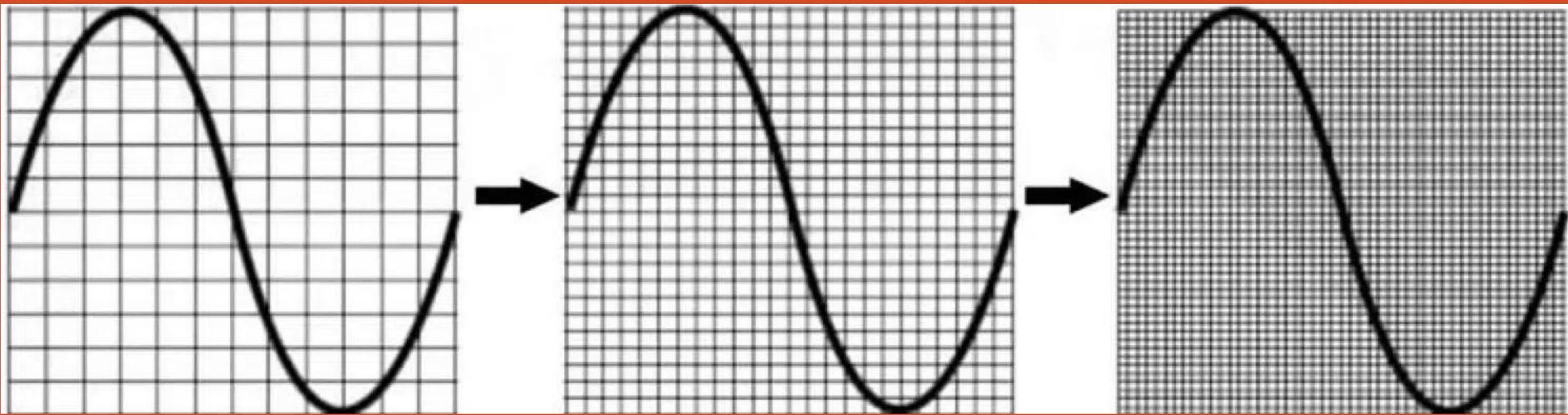


# DIGITAL



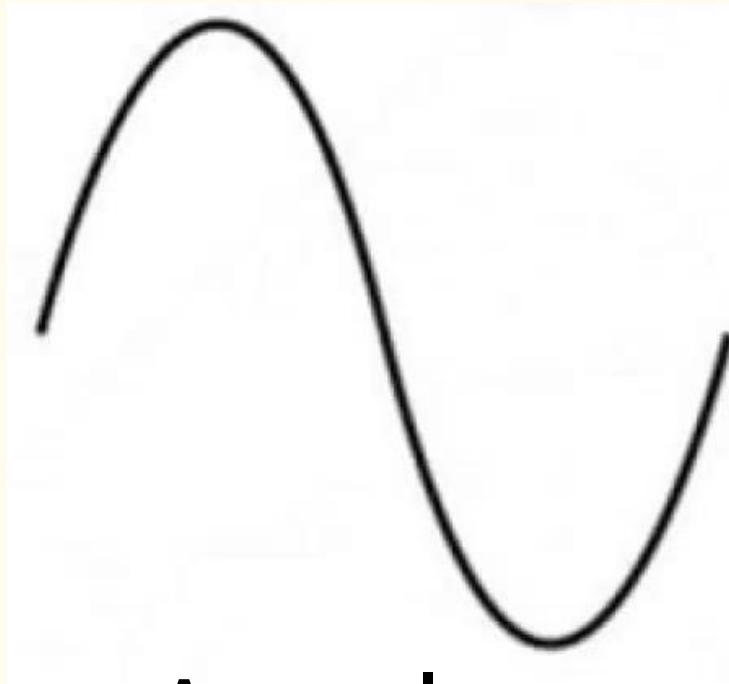
10100101010101100  
10101010010101010  
010010100110101  
01010101001101010

# ANALOG

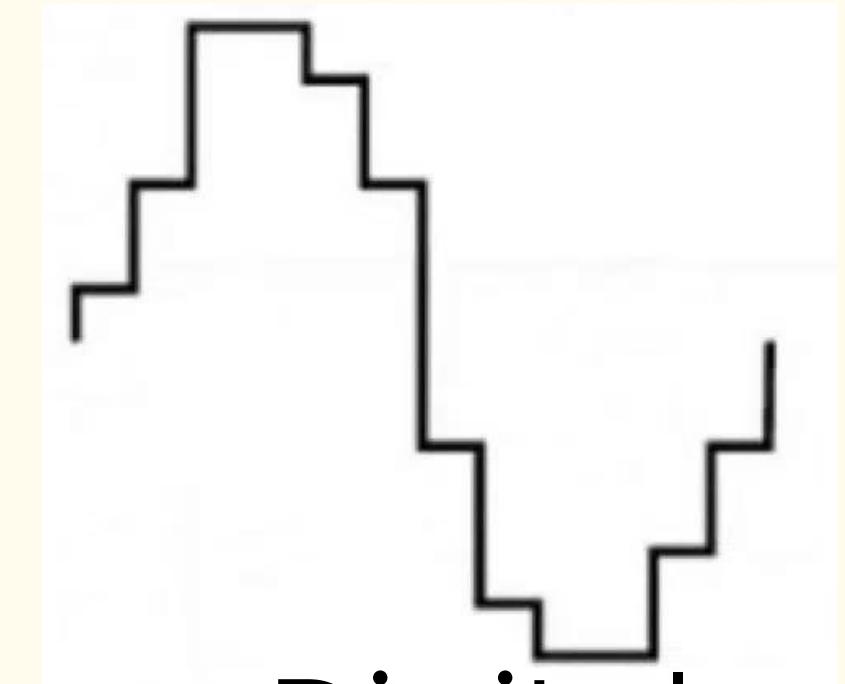


# DIGITAL

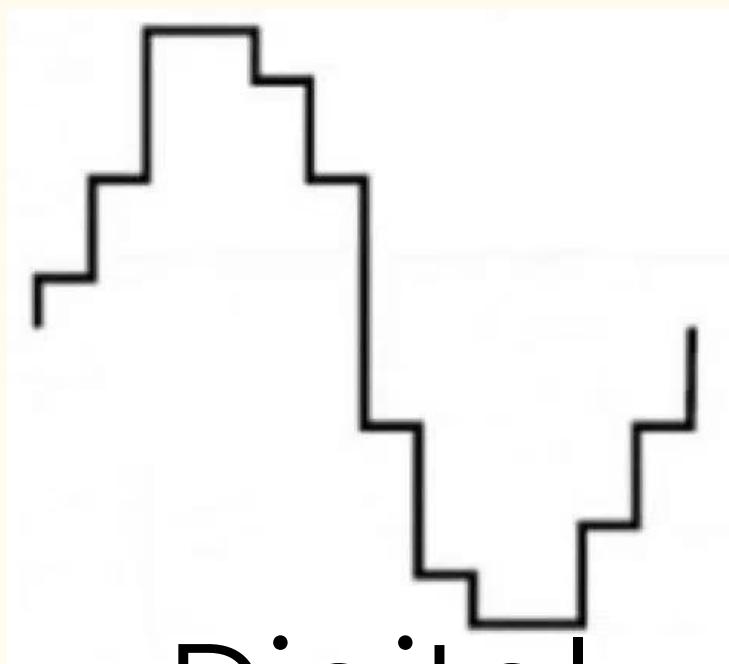
# DIGITIZATION VS MIGRATION



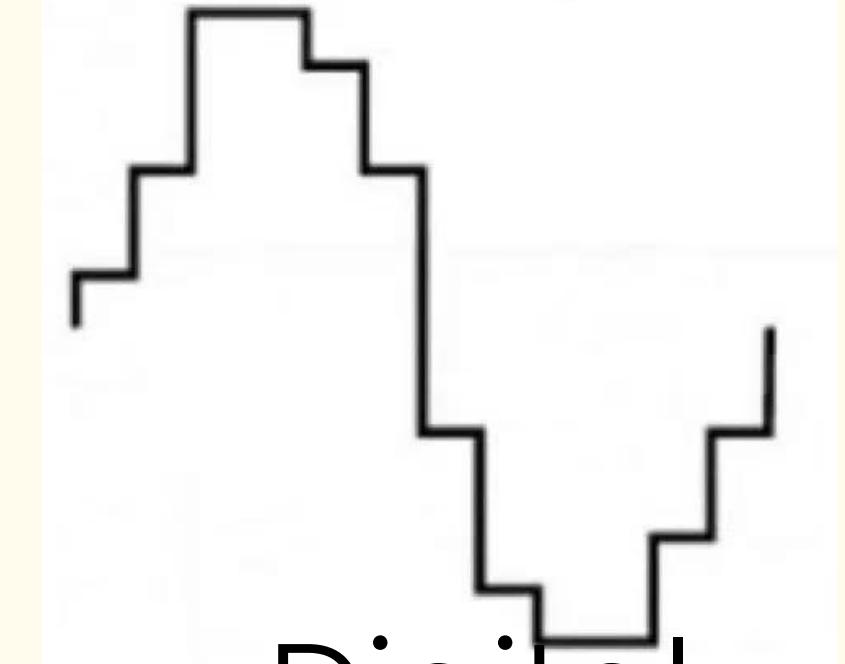
Analog



Digital



Digital



Digital

# STREAMS

Refers to the different types of content that a video file can contain

The word stream is used because this information is often **time-based**, like with audio and video streams



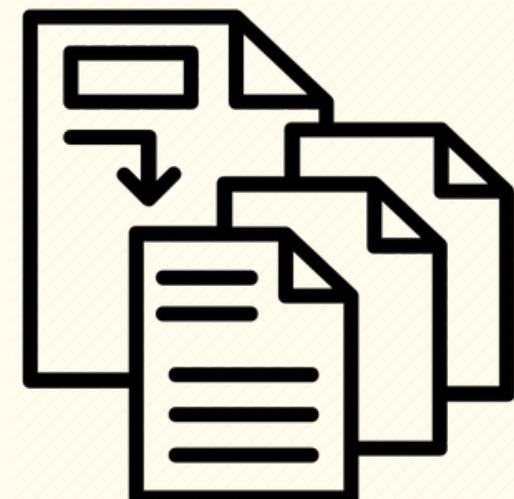
Video



Captions



Audio

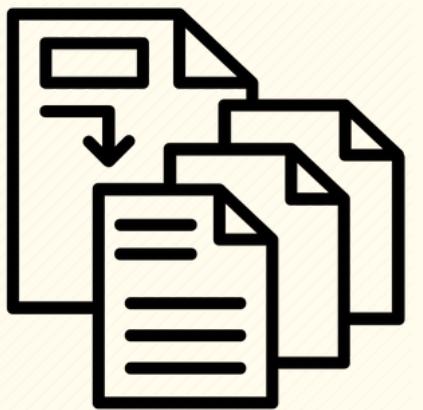


Metadata

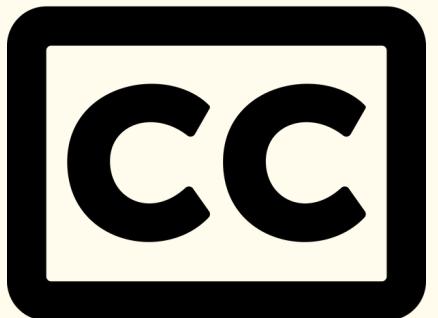
# ENCODING VS CONTAINER



Video



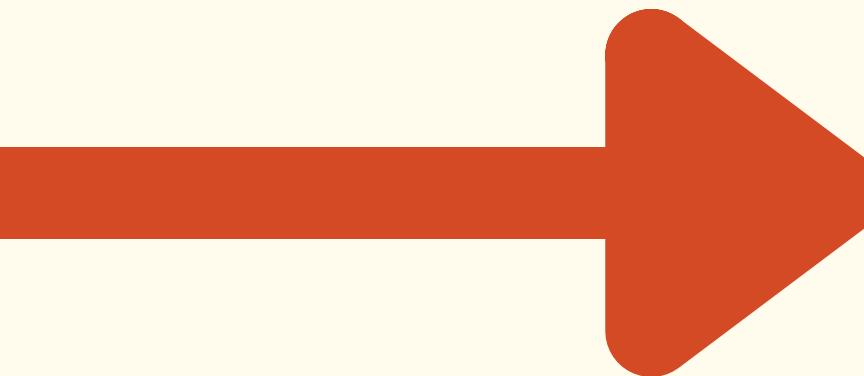
Metadata



Captions



Audio



## Encoding

The format of the different types of streams

## Container

The format that contains and organized the various streams

# ENCODING VS CONTAINER

MOV container

ProRes Video

PCM Audio

ProRes/MOV  
Video File

MKV container

FFV1 Video

FLAC Audio

SRT Subtitles

MKV/FFV1  
Video File

Often written as  
*encoding/container*

WAV container

PCM Audio

WAV  
Audio File

# TYPE OF LOSS

QUALITY

PHOTOCOPY OF A PHOTOCOPY

STREAM

CHAPTERS OF A BOOK MISSING

ORGANIZATION

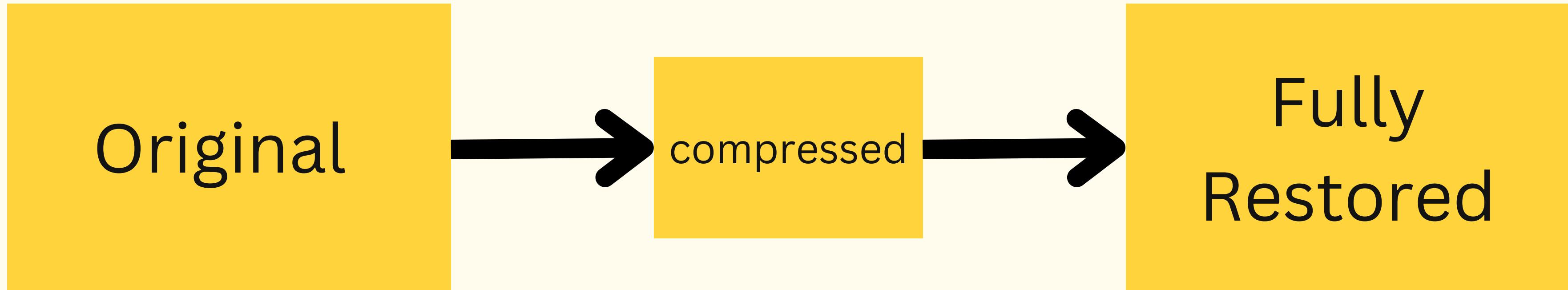
PAGES OF A BOOK OUT OF ORDER

METADATA

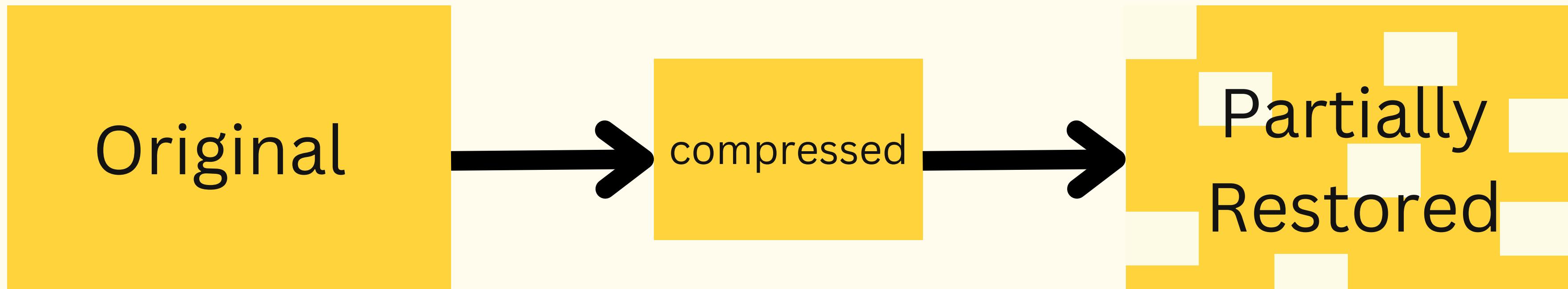
TABLE OF CONTENTS INCORRECT

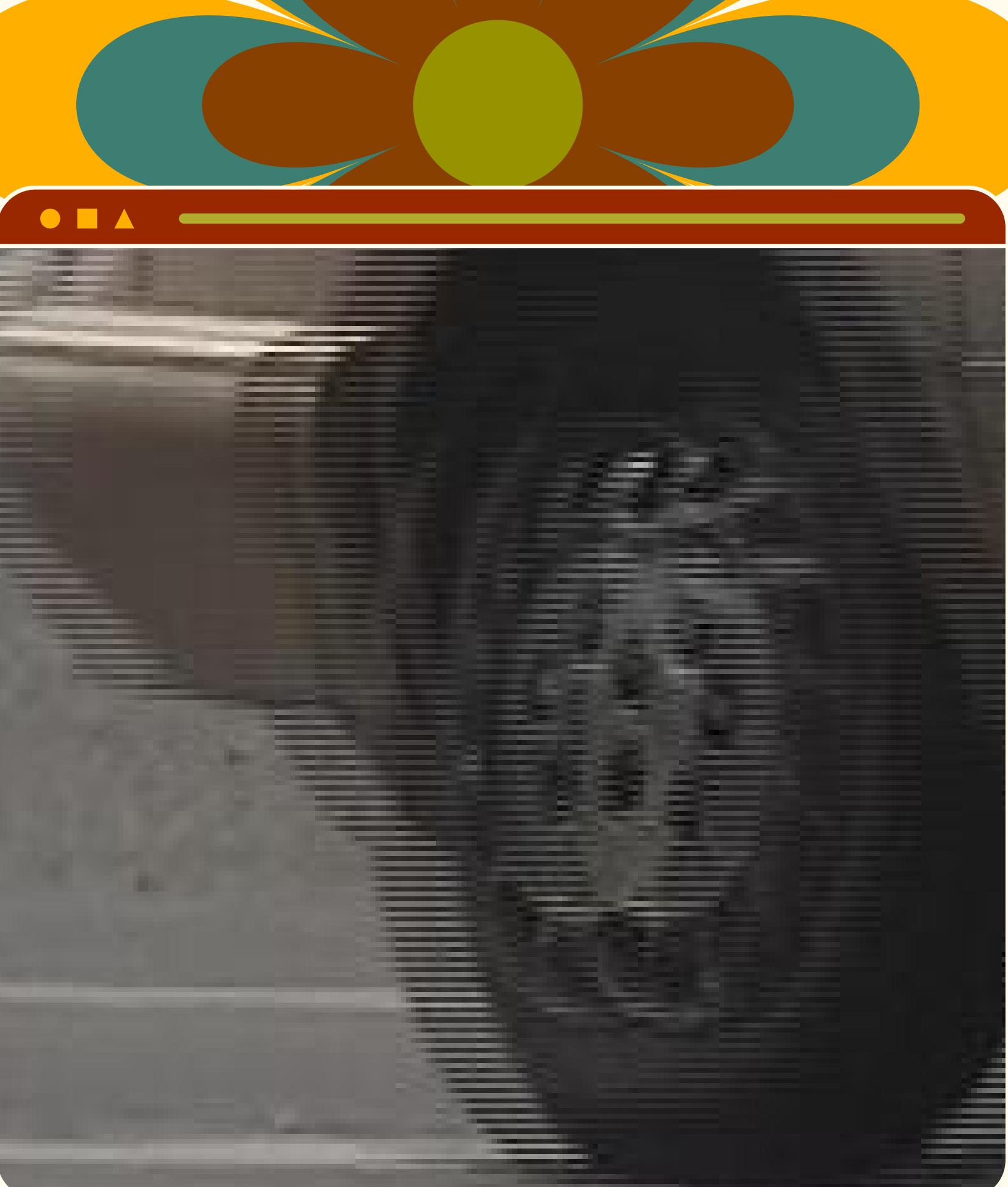
# TYPE OF COMPRESSION

## Lossless



## Lossy



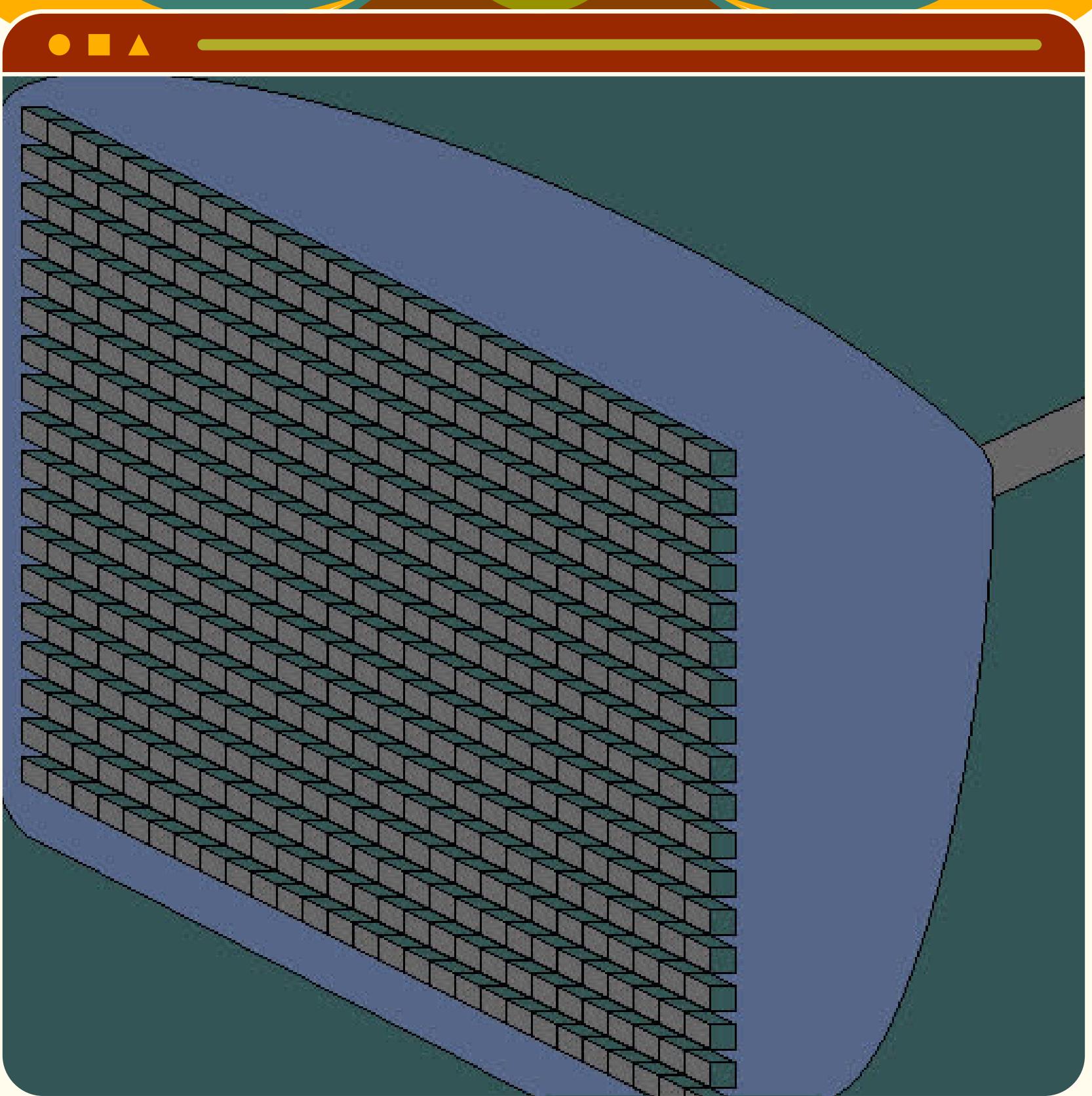


# INTERLACING

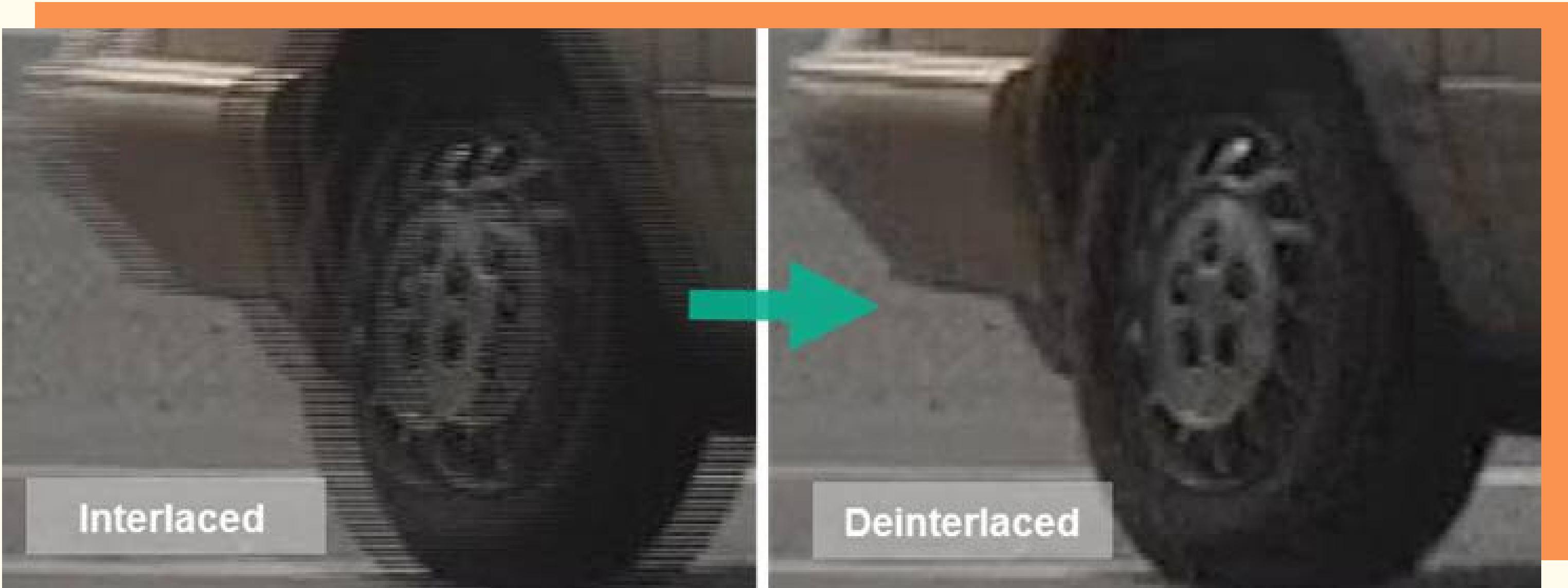
- Looks like horizontal lines tearing across the video
- ALL analog video is interlaced
- ALMOST ALL Standard Definition video is interlaced
- Preserving interlacing is an important part of preservation
- Looks good on a CRT, but not on a computer/LCD monitor

# WHY INTERLACED?

- Video was made to be viewed on Cathode Ray Tube (CRT) Monitors
- CRT's are interlaced because they are too slow to draw every line in order
- Every other line is drawn to maintain smooth motion



# DEINTERLACING



Most video editing tools have Deinterlacing algorithms that can deinterlace video so that it looks good on a computer screen, or any other progressive monitor

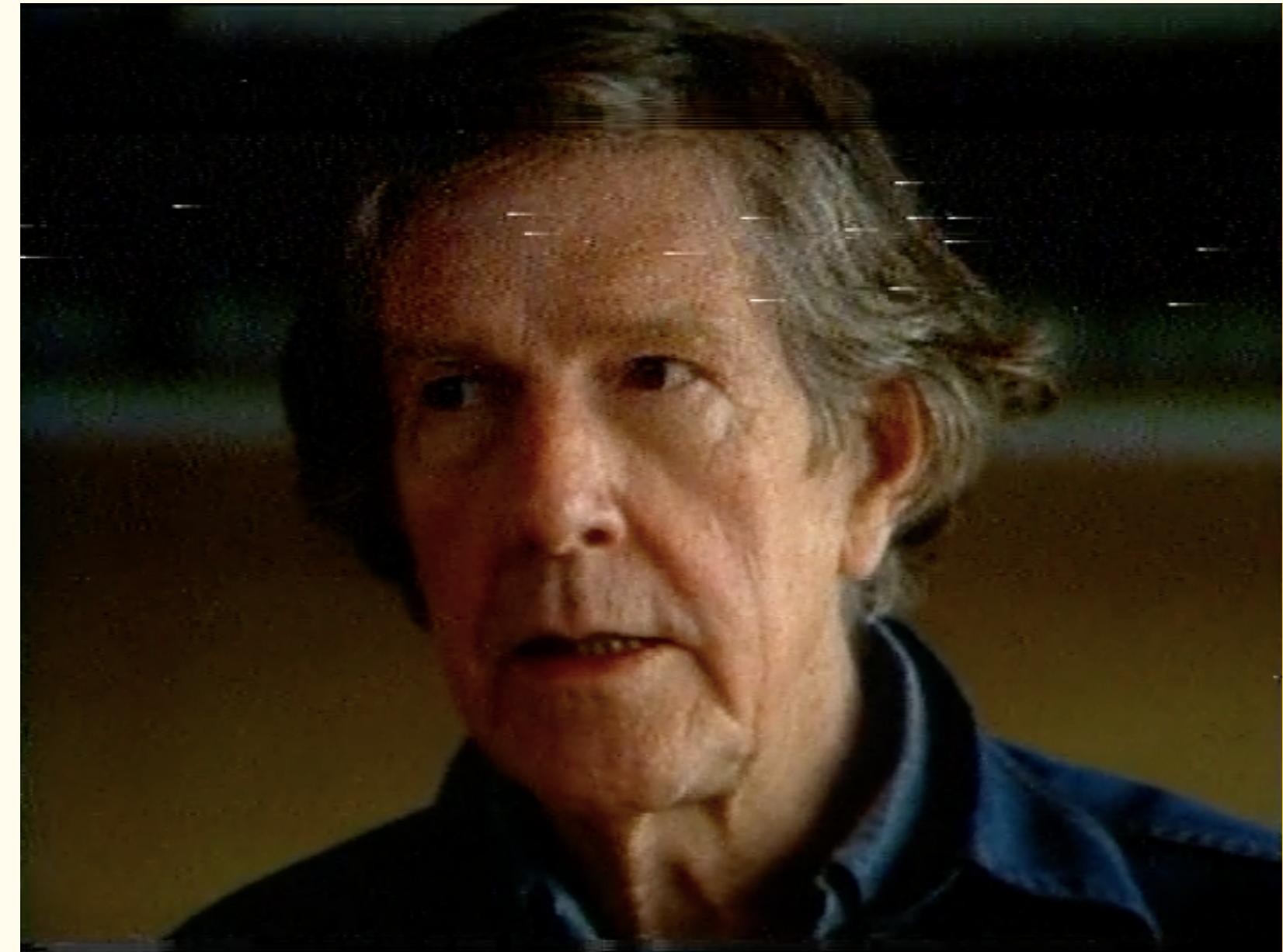
# RESOLUTION

Analog video is always  
720x486 (Standard Definition)

The picture frame is 486 lines tall.

When digitized, each line is turned into 720 pixels

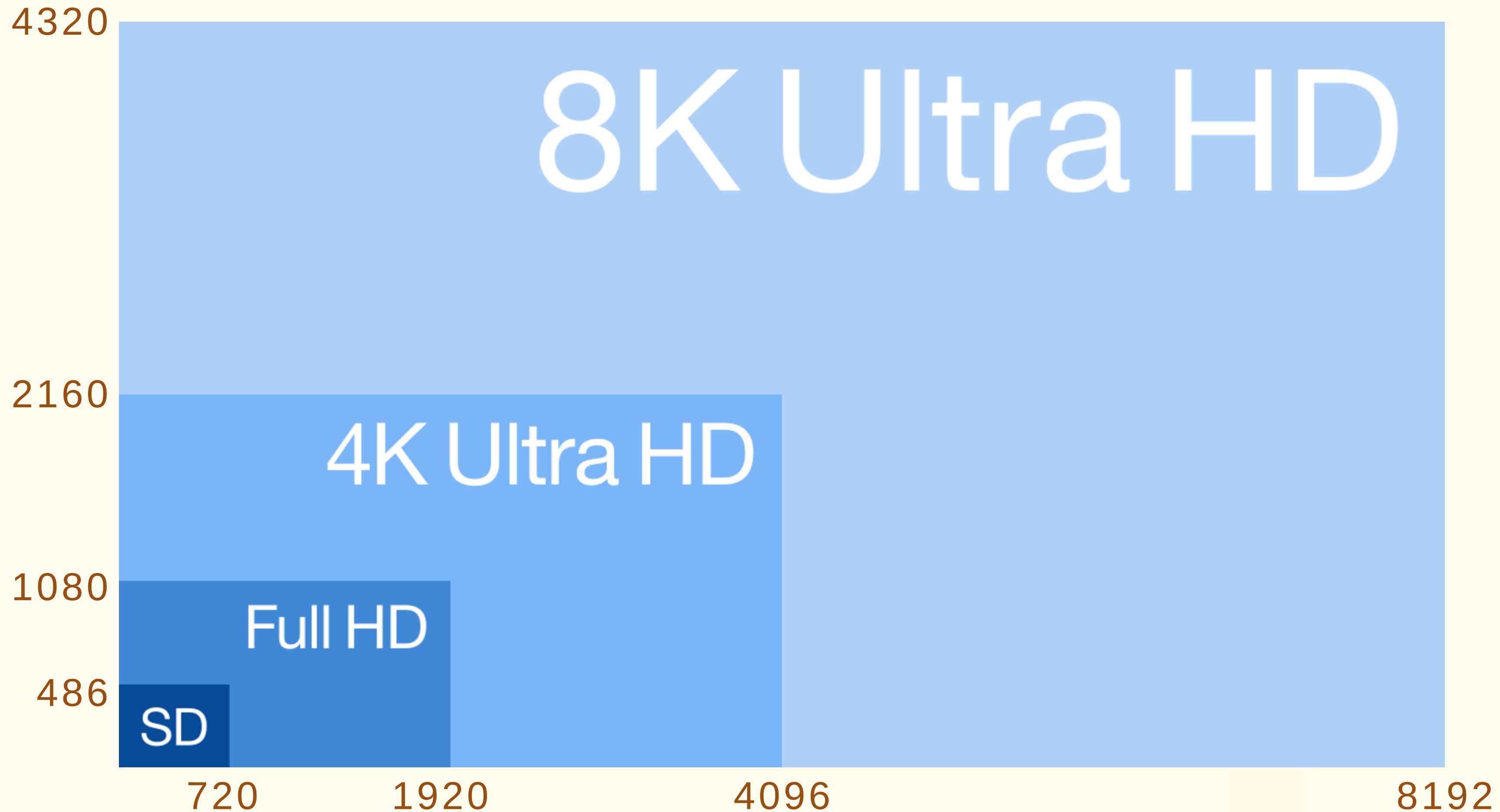
Digital Video is 480 lines tall because it's divisible by 4



|----- 720 -----|

720  
486

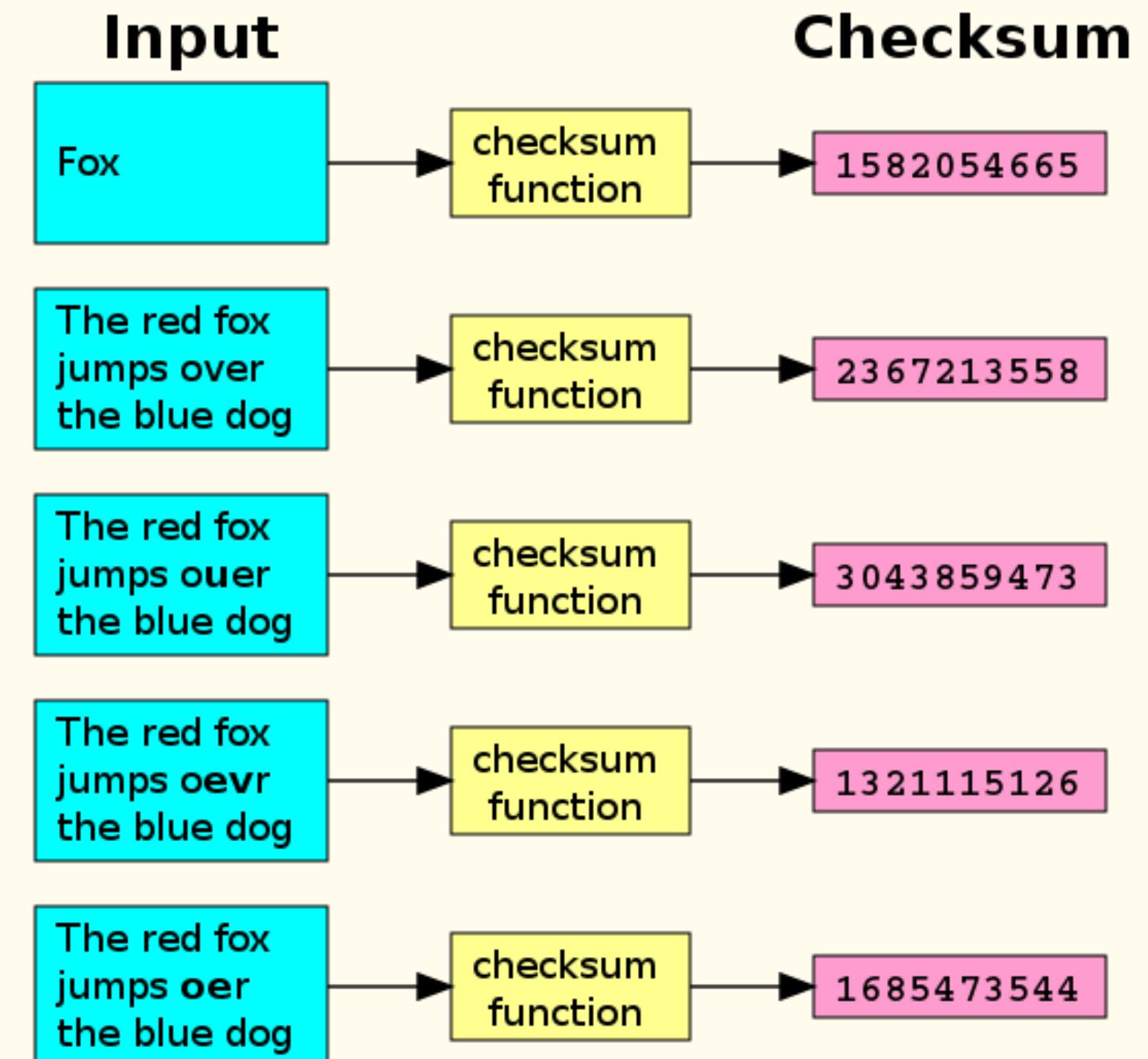
# RESOLUTION



# CHECKSUMS AND FIXITY

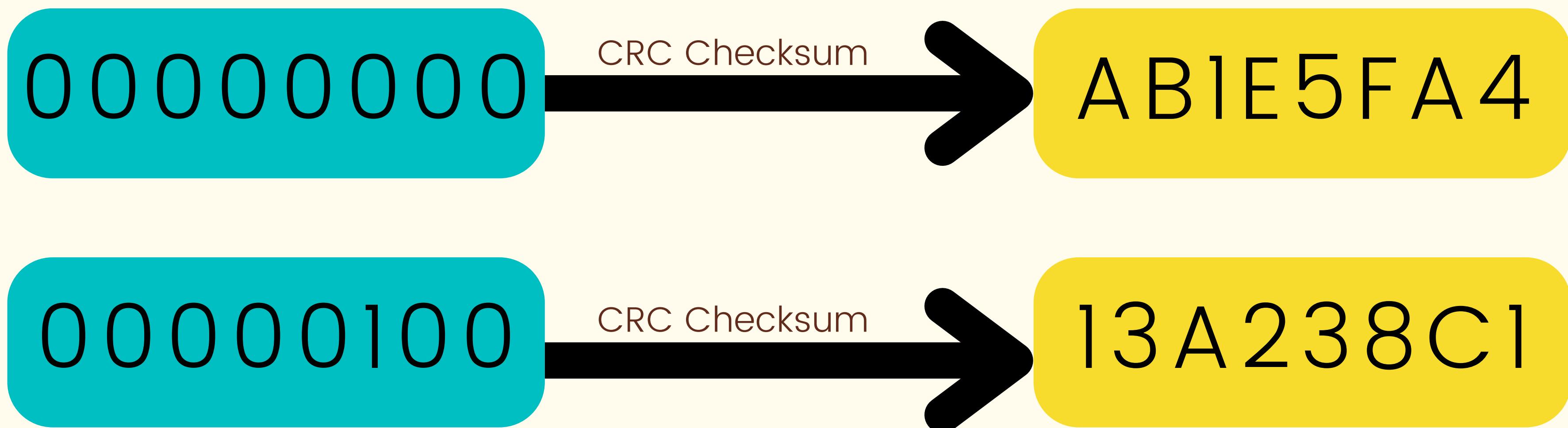
Fixity is the assurance that a digital file has remained unchanged, i.e. fixed.

A checksum, is a “digital fingerprint” derived from the 1's and 0's (bits) that make up a file. Checksums are often used to verify data integrity.



# CHECKSUMS AND FIXITY

Small changes in a file's content result in drastic changes  
in the file's checksum



# CHECKSUMS AND FIXITY

- Scheduled checksum verification is to ensure that files have not been changed or corrupted
- Checksums are often used to ensure files aren't corrupted when moved across drives or volumes
- Some formats have build in checksums



# PRESERVATION

- As close to the original as possible
- minimal/no loss
- Stable file format
- If compressed, must be lossless
- Interlaced to match source
- Internal checksums

# ACCESS

- Looks good on a screen
- Streamable
- Audio is loud and clear
- Blank audio channels are removed
- Unimportant content is removed
- Highly compressed, can be lossy
- Deinterlaced

# PRESERVATION

- As close to the original as possible
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# ACCESS

- Looks good on a screen
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- Audio is loud and clear
- Blank audio channels are removed
- Unimportant content is removed
- Highly compressed
- Deinterlaced

# PRODUCTION

- Compatible with production/editing software
- Maintains original organization, allowing user to reorganize or edit as needed
- Lightly compressed, can be lossy
- Deinterlaced

# EXERCISE 1: FILE USE CASES



# EXERCISE 1: FILE USE CASES

## File 1 - MP4 / H264

- Proprietary
- Highly Lossy Cmprsn
- Deinterlaced
- Audio Panned Center
- 720x480
- 100MB / hour

## File 2 - MOV / ProRes

- Proprietary
- Mildly Lossy Cmprsn
- Deinterlaced
- Audio same as tape
- 720x486
- 30GB / hour



# EXERCISE 1: FILE USE CASES

## File 1 - MP4 / H264

- Proprietary
- Highly Lossy Cmprsn
- Deinterlaced
- Audio Panned Center
- 720x480
- ACCESS

## File 2 - MOV / ProRes

- Proprietary
- Mildly Lossy Cmprsn
- Deinterlaced
- Audio same as tape
- 720x486
- PRODUCTION



# EXERCISE 1: FILE USE CASES

## File 3 - MOV / v210

- Proprietary
- Uncompressed
- Interlaced
- Audio same as tape
- 720x486
- 100GB / hr

## File 4 - MKV / FFV1

- Open Source
- Lossless compression
- Interlaced
- Audio same as tape
- 720x486
- Internal Checksums



# EXERCISE 1: FILE USE CASES

File 3 - MOV / v210

- Proprietary
- Uncompressed
- Interlaced
- Audio same as tape
- 720x486
- 100GB / hr
- PRESERVATION

File 4 - MKV / FFV1

- Open Source
- Lossless compression
- Interlaced
- Audio same as tape
- 720x486
- Internal Checksums
- PRESERVATION



# EXERCISE 1: FILE USE CASES

## File 5 - DV

- Proprietary
- Mildly Lossy Cmprsn
- Interlaced
- Audio same as tape
- 720x480
- 13GB / hr

## File 6 - HEVC

- Proprietary
- Lossy compression
- Deinterlaced
- Audio panned center
- 1920x1080
- 400MB / hr



# EXERCISE 1: FILE USE CASES

## File 5 - DV

- Proprietary
- Mildly Lossy Cmprsn
- Interlaced
- Audio same as tape
- 720x480
- 13GB / hr
- PRODUCTION

## File 6 - HEVC

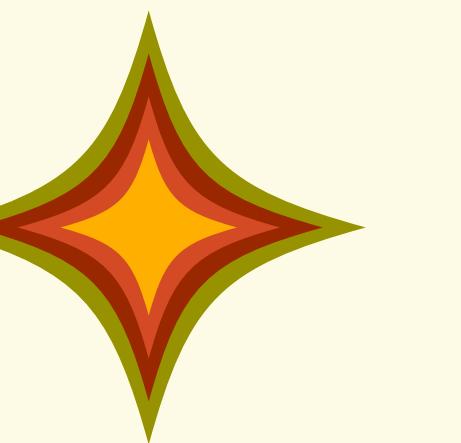
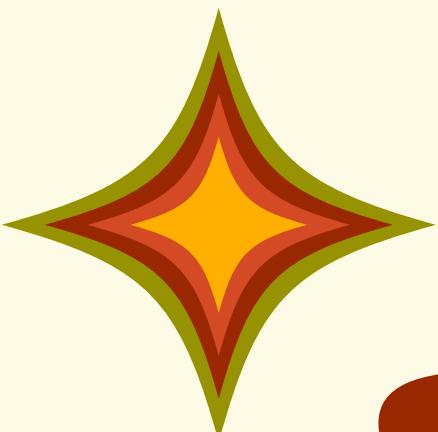
- Proprietary
- Lossy compression
- Deinterlaced
- Audio panned center
- 1920x1080
- 400MB / hr
- ACCESS

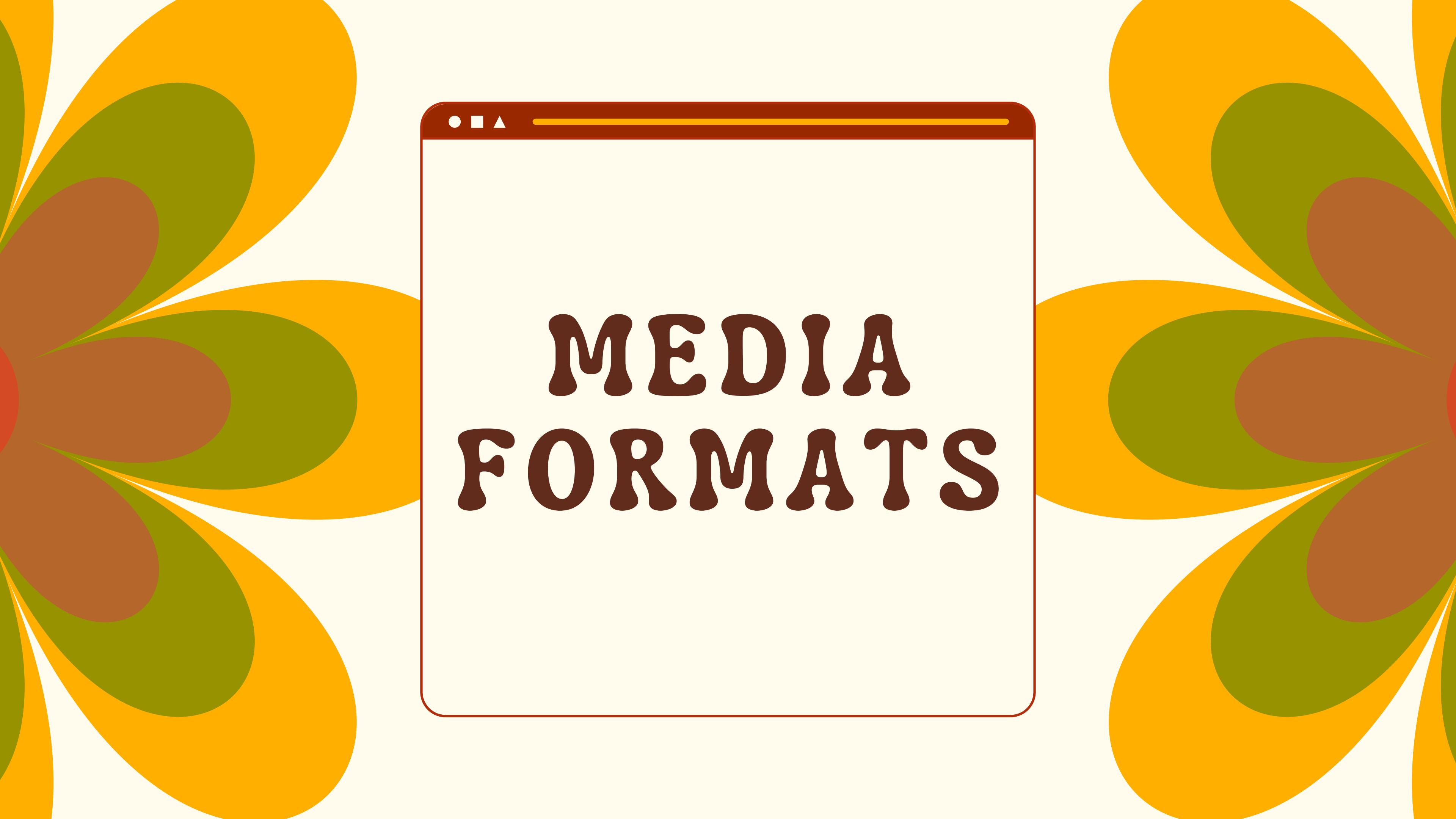


# PART ONE RECAP

- ◆ Tape formats **MUST** be digitized and Migrated
- ◆ Preservation and Access serve different need and require different approaches
- ◆ Digitization means going from Analog to Digital
- ◆ Migration means moving across Digital Formats

BREAK  
TIME





# MEDIA FORMATS

# PHYSICAL MEDIA FORMATS

- Analog Tape
  - VHS, U-matic, BetaCam
- Digital Tape
  - MiniDV, DVCAM, DVCPRO, HDV
- Optical Disc
  - CD, DVD, Blu-Ray



# MEDIA FORMATS

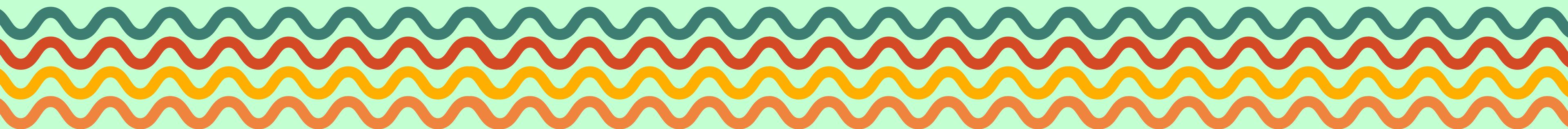
## ANALOG TAPE

- Analog Signal recorded to Magnetic Tape
- Interlaced
- Uncompressed
- Standard Definition (SD)
- VHS, U-matic, Betacam



# MEDIA FORMATS

## ANALOG TAPE



# MEDIA FORMATS

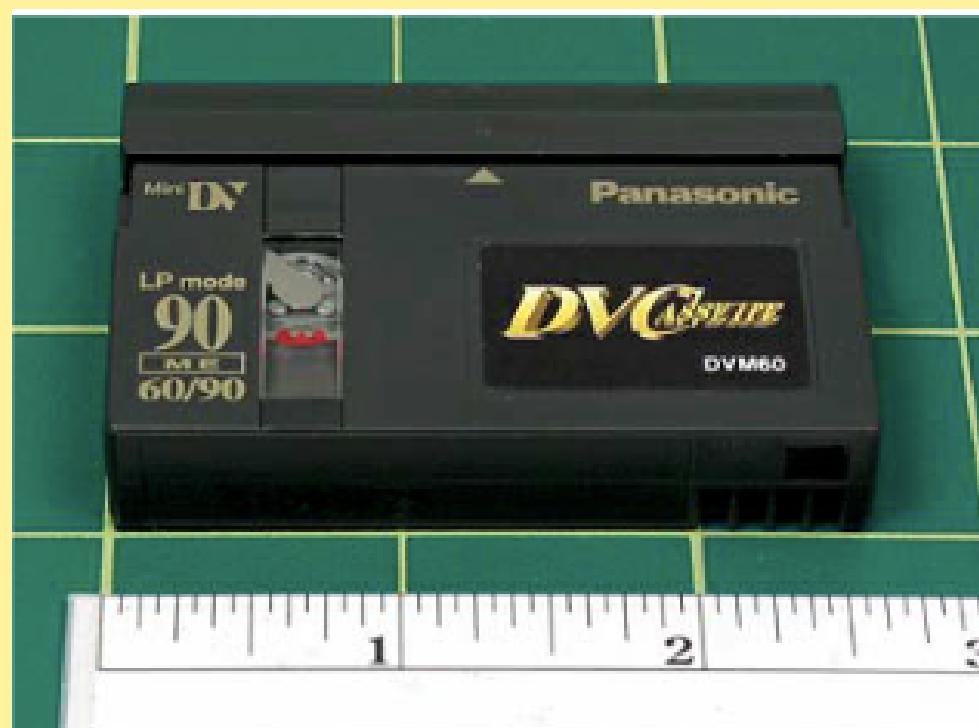
## DIGITAL TAPE

- Digital signal (1's and 0's) recorded to Magnetic Tape
- Can be Interlaced or Deinterlaced
- Lossy Compressed
- Can be Standard Definition (SD) or High Definition (HD)
- MiniDV, DVCAM, HDV



# MEDIA FORMATS

## DIGITAL TAPE



# MEDIA FORMATS

## OPTICAL DISC

- Digital signal encoded onto a disc
- Can hold audio streams, video streams, or file-based content
- CD, DVD, Blu-Ray



# MEDIA FORMATS

## OPTICAL DISC



CD, DVD, or BLU-RAY ?





# PRESERVATION FORMATS

# PRESERVATION FORMATS

- Video formats suffer from degradation and obsolescence, they must be converted
- Preservation Formats are types of files that can properly store AV content Losslessly and remain Stable, for a Long Time



# THERE IS NO "ONE SIZE FITS ALL" PRESERVATION FORMAT



ANALOG  
TAPE

DIGITAL  
TAPE

OPTICAL  
DISC

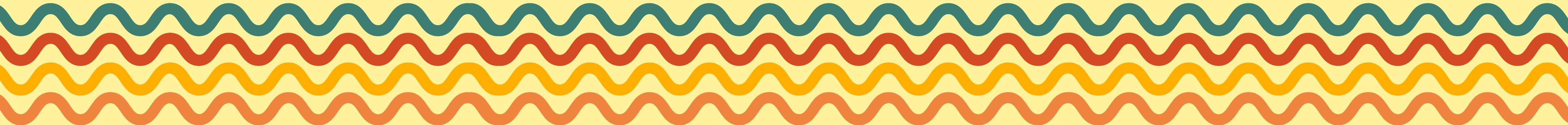
# ANALOG TAPE

Analog Video must be converted to a digital file without losing quality or structure



# DIGITAL TAPE

Already digital, so it needs to  
be turned into a file (or files)  
without losing data  
(migration)



# OPTICAL DISC

Already digital, so it needs to  
be turned into a file (or files)  
without losing data or  
structure (migration)

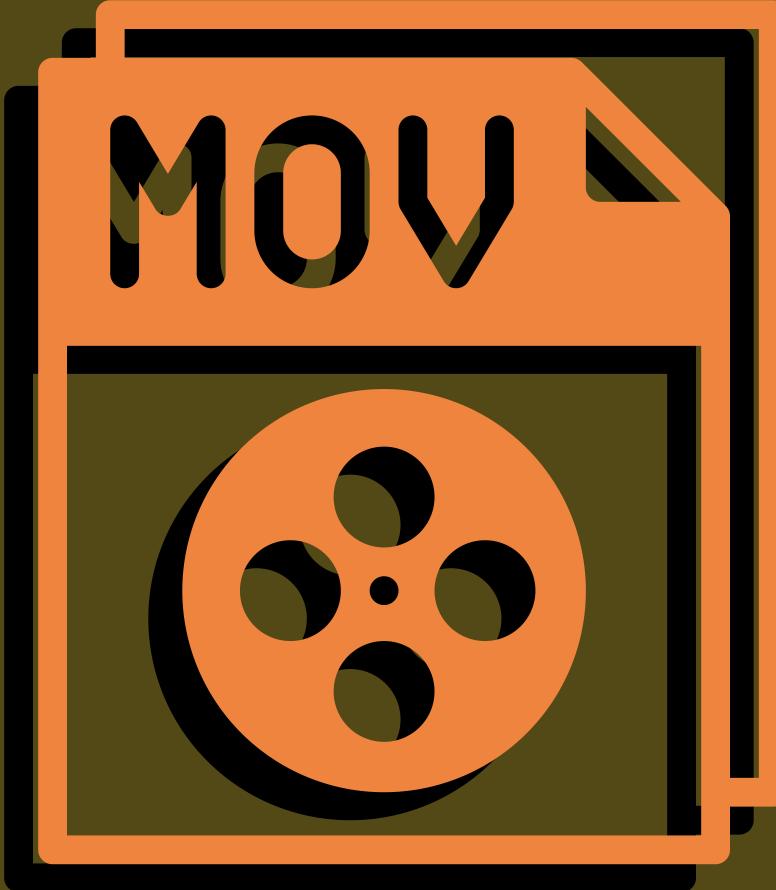


# ACCESS



H.264 / MP4

# PRODUCTION



ProRes / MOV  
(422 HQ)

# ANALOG PRESERVATION FORMAT DETAILS

- **Bit Depth** -> Defines how detailed the quality can be
  - *10 bits at least*
- **Compression** -> Compression makes large files smaller
  - *Uncompressed or Lossless*
- **Stream Support** -> AV files need to support various types of streams found on tape-based media
  - *Video, Multiple Audio, Timecode and Subtitles*
- **Frame-Level Checksums** -> Ensures AV data is not corrupted
  - *Some formats provide frame-level checksums*

# ANALOG PRESERVATION FORMAT DETAILS

- **Open Source** -> The technology behind the format is freely available
  - *Ideal for more advanced and complex formats*
- **Broad Technical Support** -> Have others in the field adopted it?
  - *The more adoption there is the longer the format will be supported*

# PRES FORMATS FOR ANALOG TAPE

Encoding / Wrapper	Bit Depth	Compression	Flexible Streams	Frame-Level Checksum	Open Source	Broad Technical Support	Conclusion
H.264 / MP4	Depends, but often 8 Bit	Lossy	Medium	No	No	Yes	1.5 / 6
DV25 / DV	8 Bit	Lossy	No	No	No	No	0 / 5
ProRes / MOV	10 Bit	Lossy	Medium	No	No	Yes	2.5 / 6
UYVY / MOV	8 Bit	None	Medium	No	No	Medium	2 / 6
V210 / AVI	10 Bit	None	No	No	No	No	2 / 6
V210 / MOV	10 Bit	None	Medium	No	No	Yes	3.5 / 6
J2K / MXF	10 Bit	Lossless	Yes	Yes	No	No	4 / 6
FFV1 / MKV	10 Bit	Lossless	Yes	Yes	Yes	No	5 / 6

# PRES FORMATS FOR ANALOG TAPE

- **10-Bit Uncompressed YUV 4:2:2 -> MOV**
  - Most common and easy to use format
  - 100GB/hr SD NTSC
- **Losslessly Compressed JPEG2000 -> MXF**
  - Used by Library of Congress
  - Informed by SMPTE standards
  - 40-50 GB/hr SD NTSC
- **Losslessly Compressed FFv1 -> MKV**
  - Open Source
  - 40-60 GB/hr SD NTSC

# PRES FORMAT FOR DIGITAL TAPE

## QUALITY

DEPENDS ON QUALITY OF VIDEO  
CONVERSION

## STREAM

NEED TO FIND A FORMAT THAT  
PROPERLY CAPTURES ALL STREAMS

## ORGANIZATION

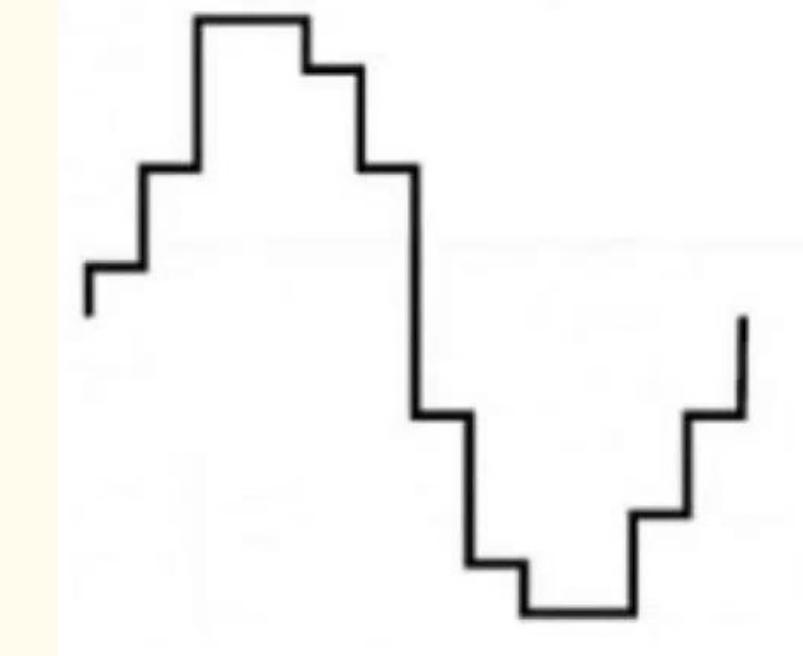
???

## METADATA

???

# PRES FORMATS FOR DIGITAL TAPE

MUCH SIMPLER THAN  
ANALOG FORMATS BECAUSE  
IT'S ALREADY DIGITAL



USE THE SAME FORMAT THAT  
THE VIDEO CONTENT IS  
ALREADY IN

# PRES FORMATS FOR DIGITAL TAPE



MIGRATE  
TO



# PRES FORMATS FOR OPTICAL DISCS

QUALITY

EXACT BIT-FOR-BIT COPY

STREAM

ALL STREAMS RETAINED EXACTLY

ORGANIZATION

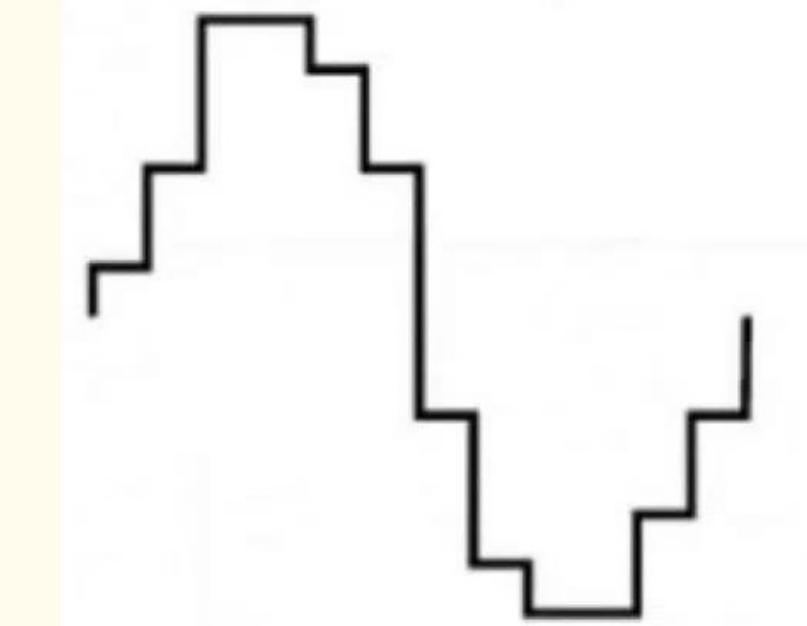
MIGRATE FROM TAPE TO FILE

METADATA

METADATA RETAINED EXACTLY

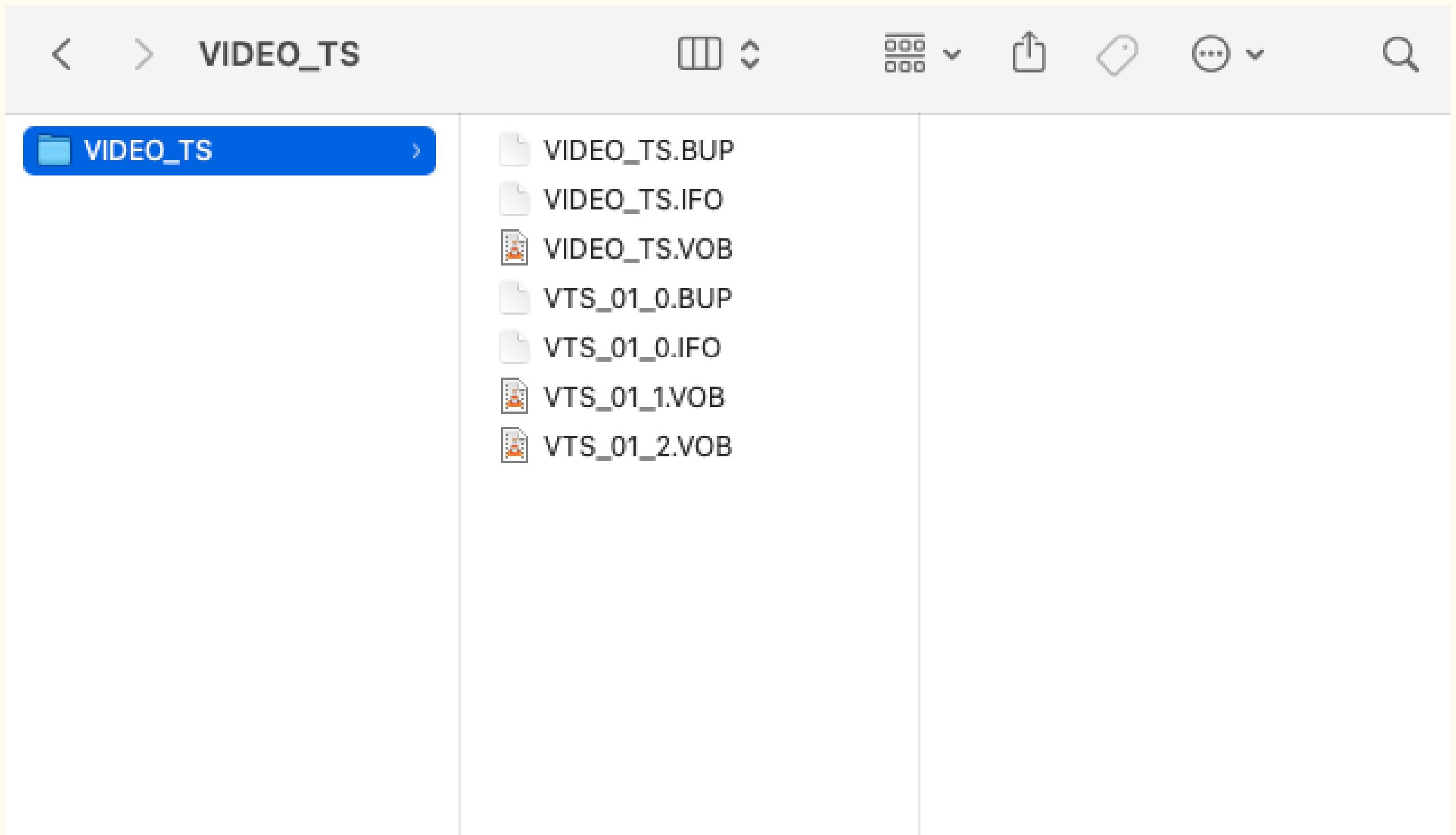
# PRES FORMATS FOR OPTICAL DISCS

SIMILAR TO DIGITAL TAPES, THE  
CONTENT IS ALREADY DIGITAL  
SO MIGRATE IT TO A FILE



COMPLEX IN THAT DIFFERENT  
TYPES OF DISCS HAVE DIFFICULT  
FOLDER AND FILE STRUCTURES

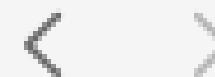
# DVD-VIDEO



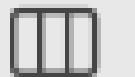
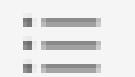


# DVD-ROM

# BLU-RAY



PLAYLIST



- AUXDATA >
- BACKUP >
- BDJO >
- CLIPINF >
- index.bdmv
- JAR >
- META >
- MovieObject.bdmv
- PLAYLIST > **PLAYLIST**
- STREAM >

- 00000.mpls
- 01900.mpls

# PRES FORMATS FOR OPTICAL DISC



MIGRATE  
TO



# ISO FORMAT FOR OPTICAL DISC

**QUALITY**

EXACT BIT-FOR-BIT COPY

**STREAM**

ALL STREAMS RETAINED EXACTLY

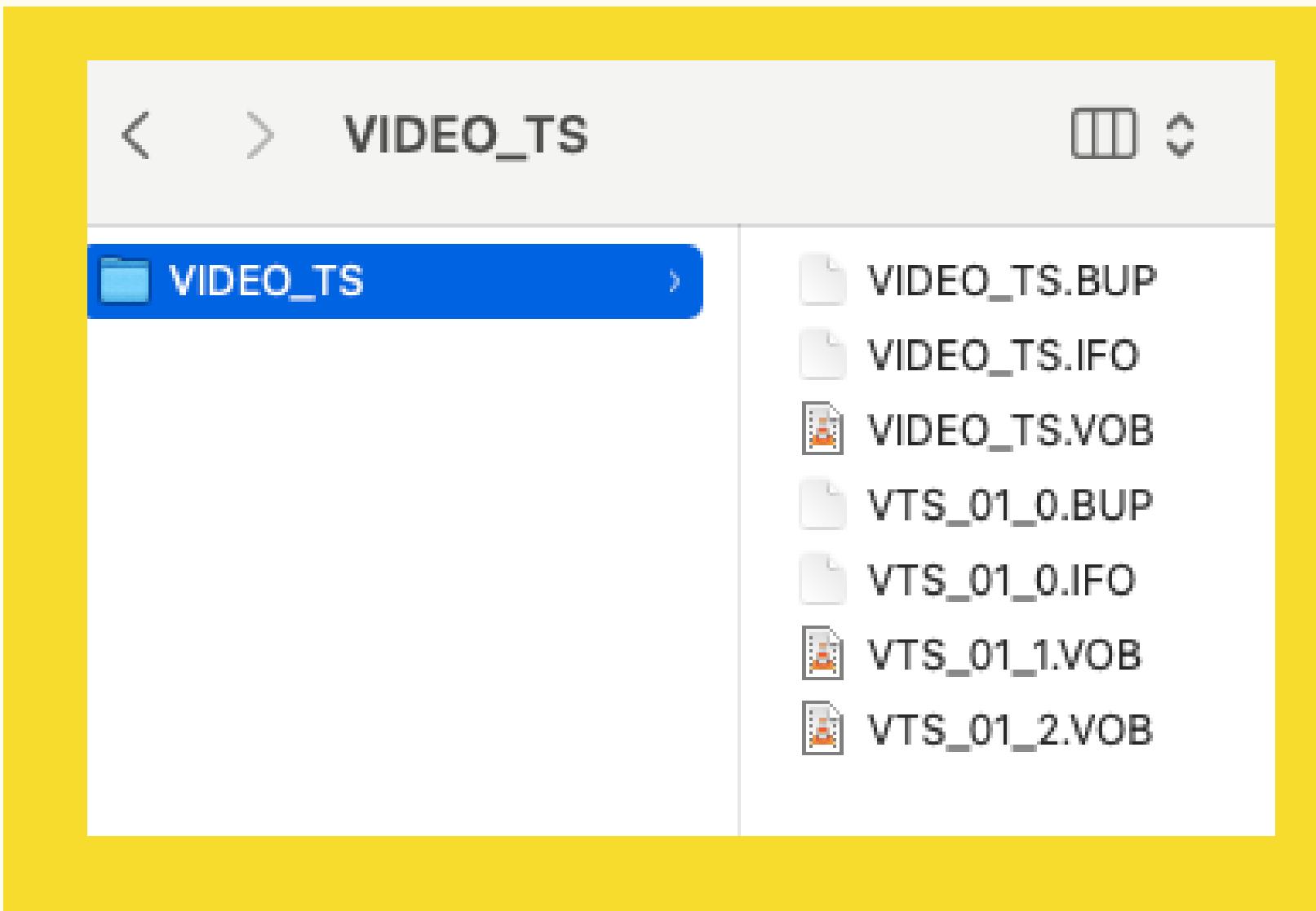
**ORGANIZATION**

ORGANIZATION RETAINED EXACTLY

**METADATA**

METADATA RETAINED EXACTLY

# PRESERVATION



# ACCESS

VS



# EXERCISE 2: PRES FORMATS



# EXERCISE 2: PRES FORMATS

ANALOG  
TAPE

1) MAINTAIN  
ORGANIZATION OF  
ORIGINAL

DIGITAL  
TAPE

4) UNCOMPRESSED

OPTICAL  
DISC

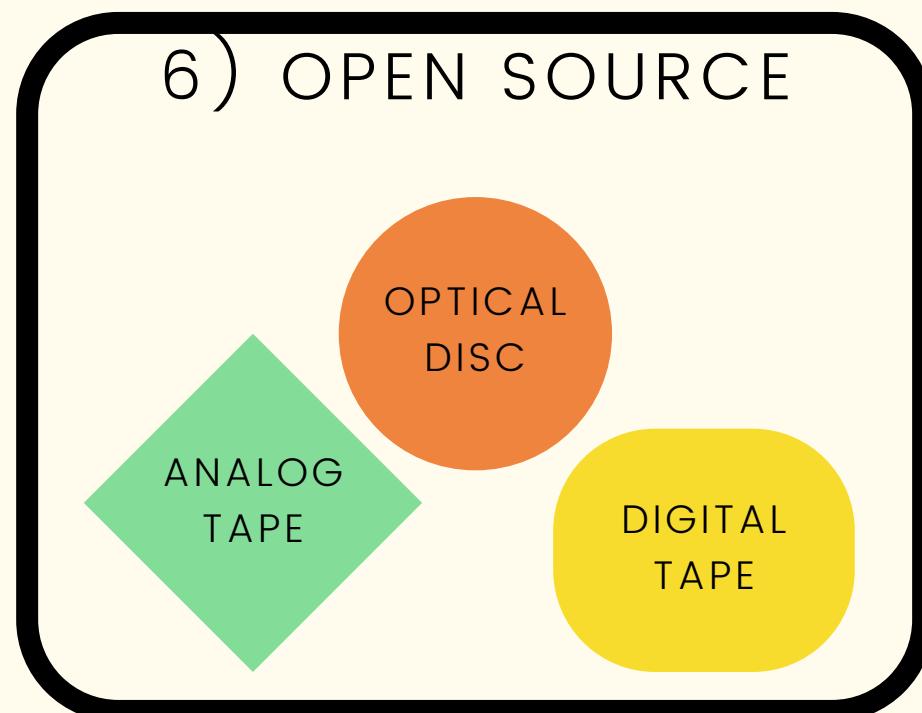
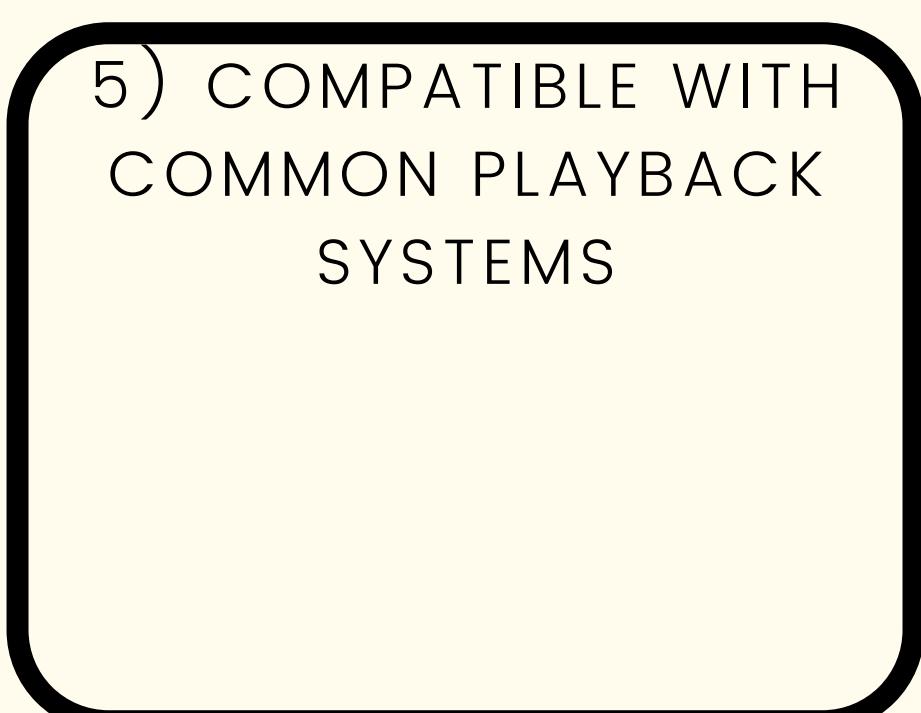
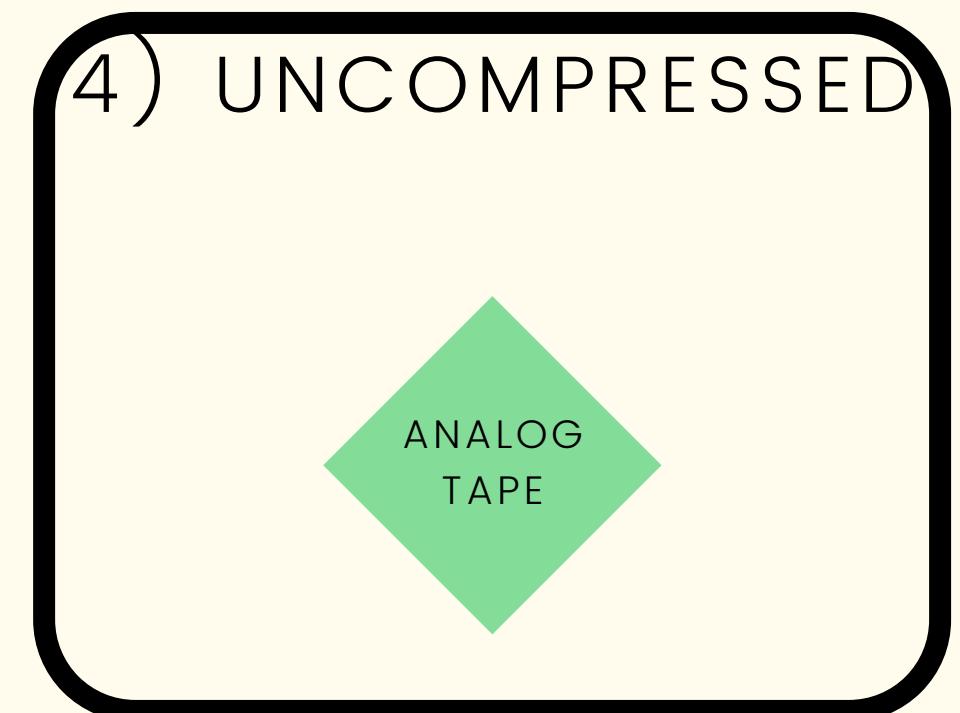
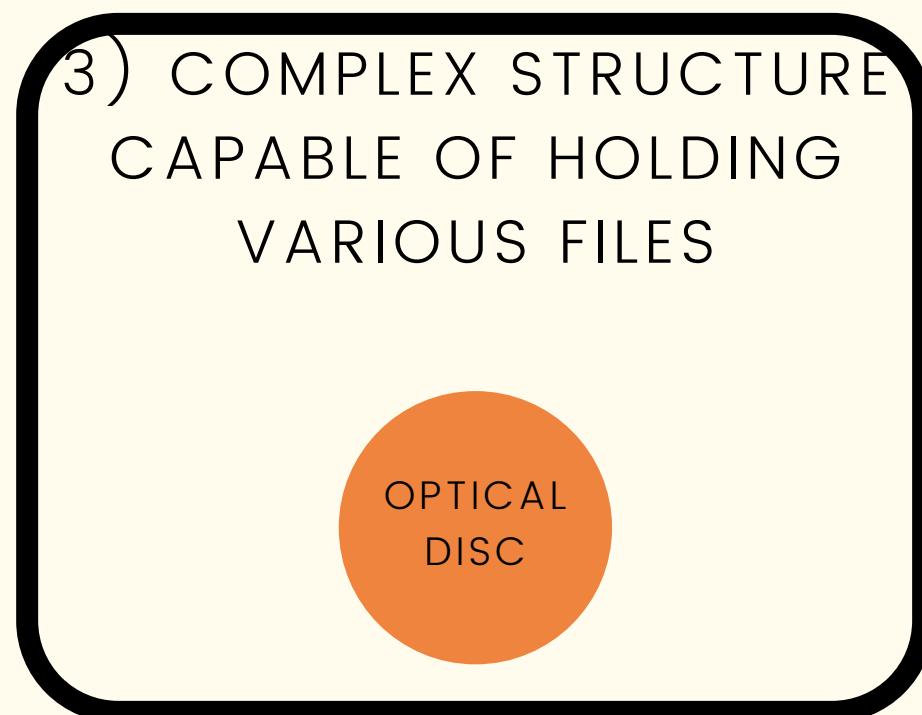
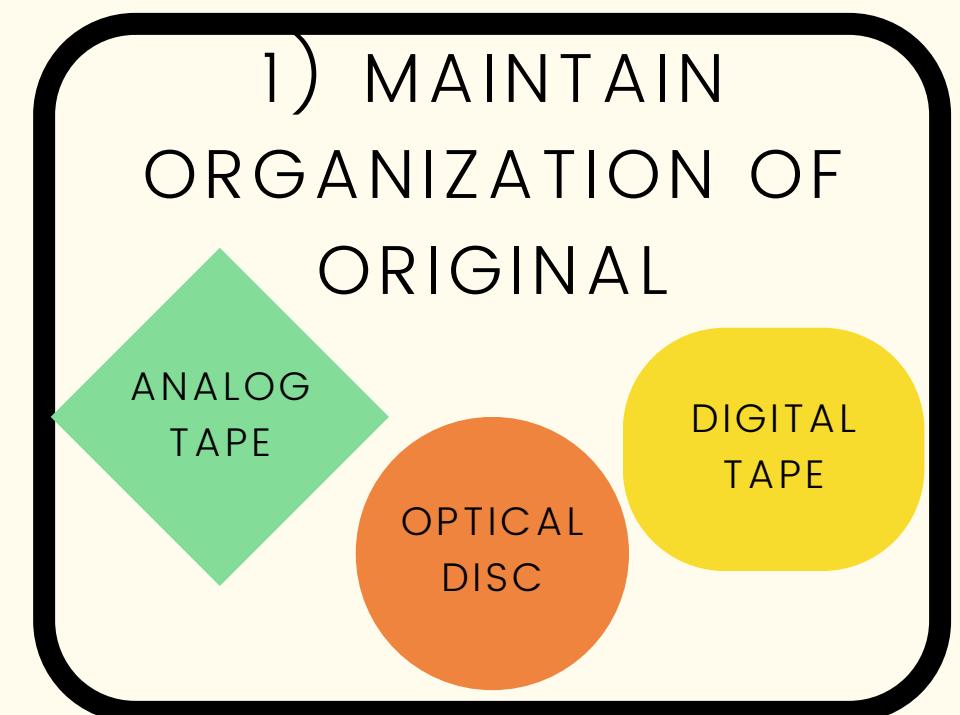
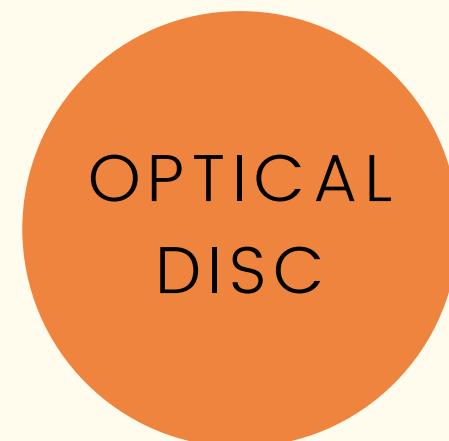
2) LOSSLESS  
COMPRESSION

COMPATIBLE WITH  
COMMON PLAYBACK  
SYSTEMS

3) COMPLEX STRUCTURE  
CAPABLE OF HOLDING  
VARIOUS FILES

OPEN SOURCE

# EXERCISE 2: PRES FORMATS





# PRESERVATION SOFTWARE

# PRESERVATION SOFTWARE

## CREATING FILES

Analog Tape

Digital Tape

Optical Disc

Access Files

vrecord



dvrescue



MakeMKV  
or...

ddrescue



Handbrake



# VRECORD

- Used to digitize video files to various preservation formats
- Open Source, developed by archivists
- Currently requires command line use, and a slightly steep learning curve

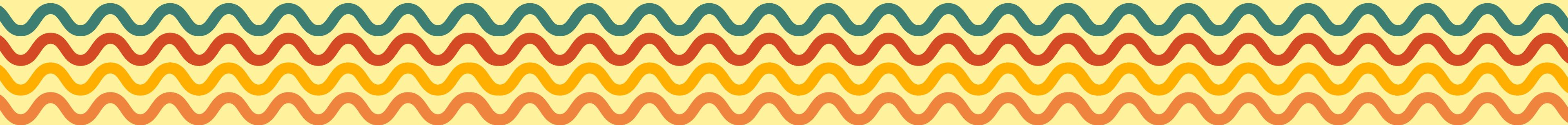




# DVRESQUE



- Used to migrate DV tapes to files
- Open Source, developed by archivists
- Relatively simple interface, improving every day





# MAKEMKV



- Used to create ISOs from DVDs and Blu-Rays
- Not free or open source (\$60)
- Can handle various types of discs, including oddballs



# DDRESCUE

- Used to create ISOs from DVDs and BRs
- Free, Open Source
- Can handle damaged and corrupted discs well
- CON: Command line only, harder to use

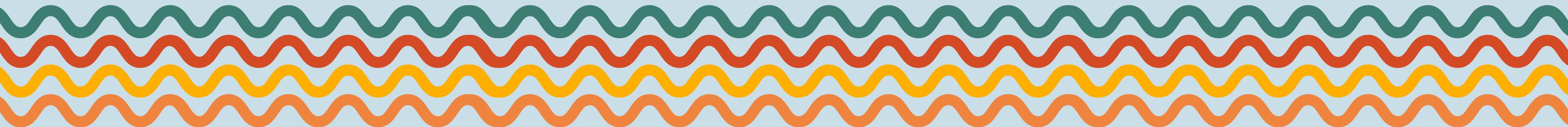




# HANDBRAKE



- Used to create access files from various preservation files
- free and open source
- Can handle various preservation file types, creates MP4s with many options



# PRESERVATION SOFTWARE

vrecord



dvrescue



MakeMKV

or...

ddrescue



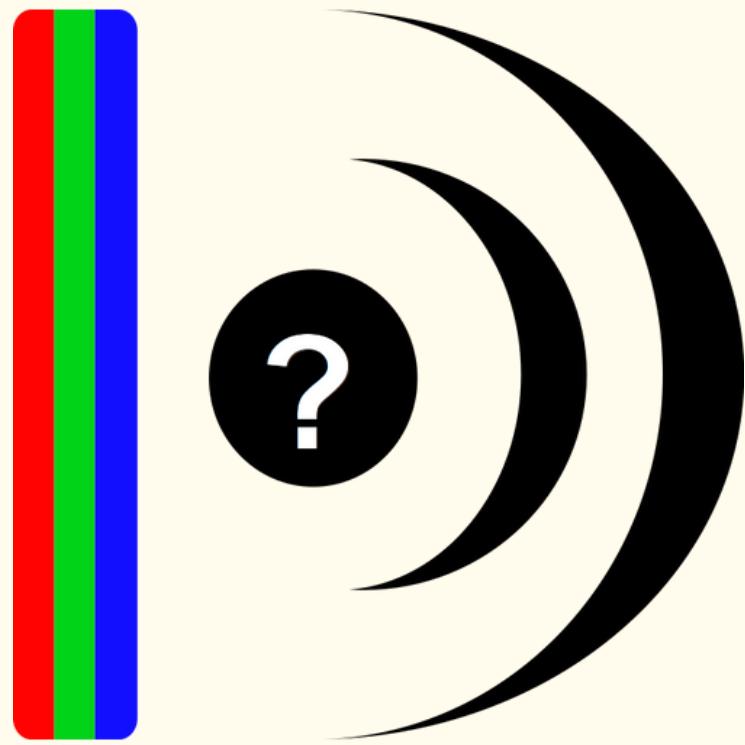
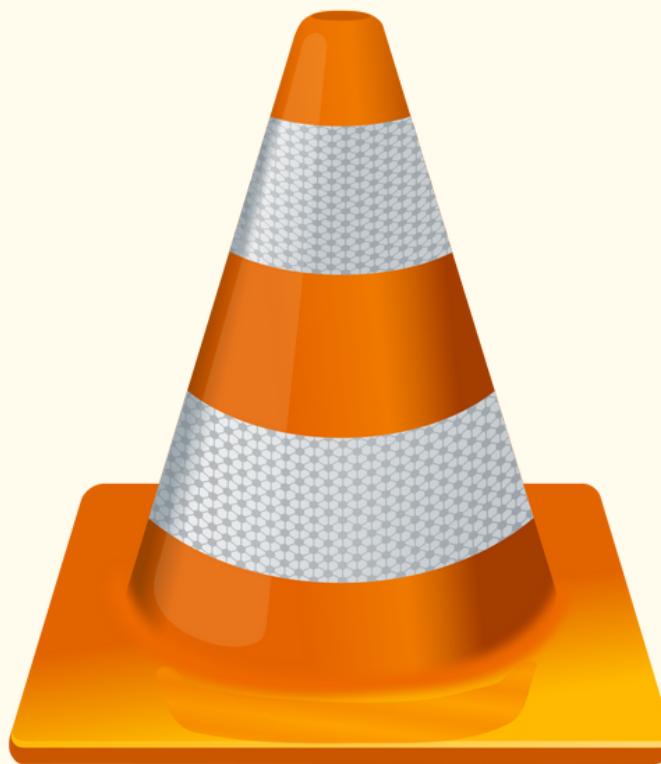
Handbrake

## DAY TWO WILL ALL ABOUT USING THESE!



# PRESERVATION SOFTWARE

## ANALYZING FILES



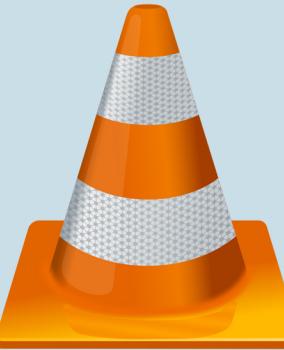
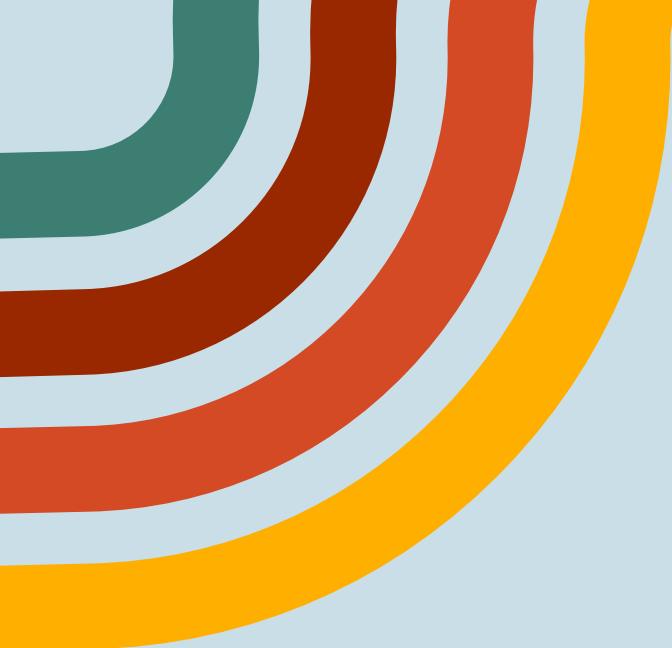
AV Artifact Atlas

Mediainfo

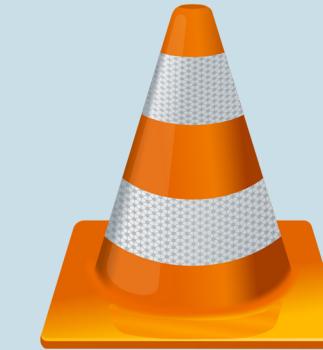
MediaConch

QCTools

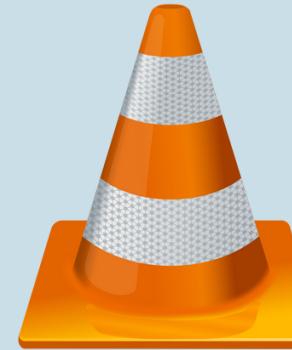
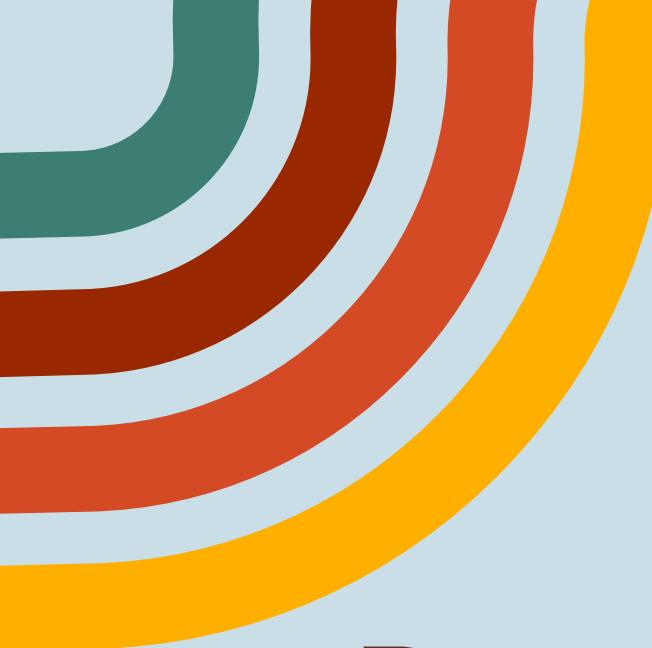




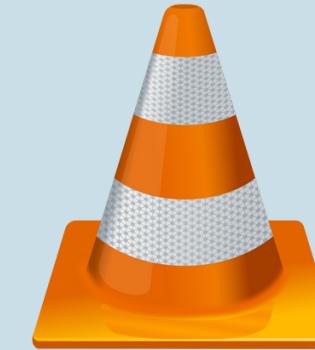
# VLC



VideoLAN Client (VLC) is a free and open source media player. It supports nearly any video format, and can play back complex streams



# VLC

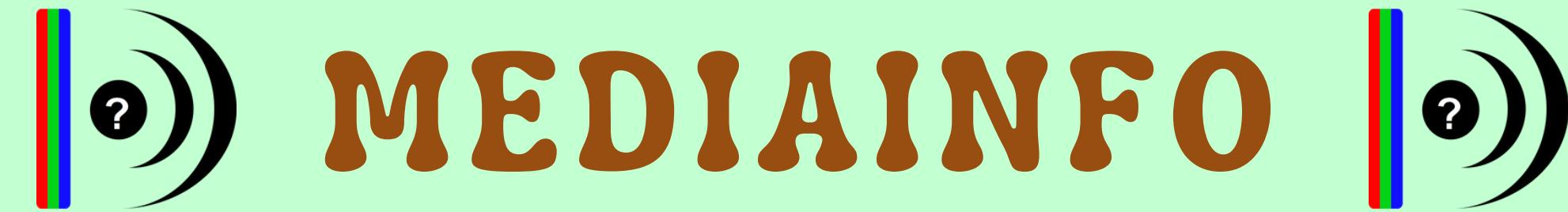


## Pros

- Free! Open Source!
- Flexible, plays almost anything
- Lets you select various audio and caption streams

## Cons

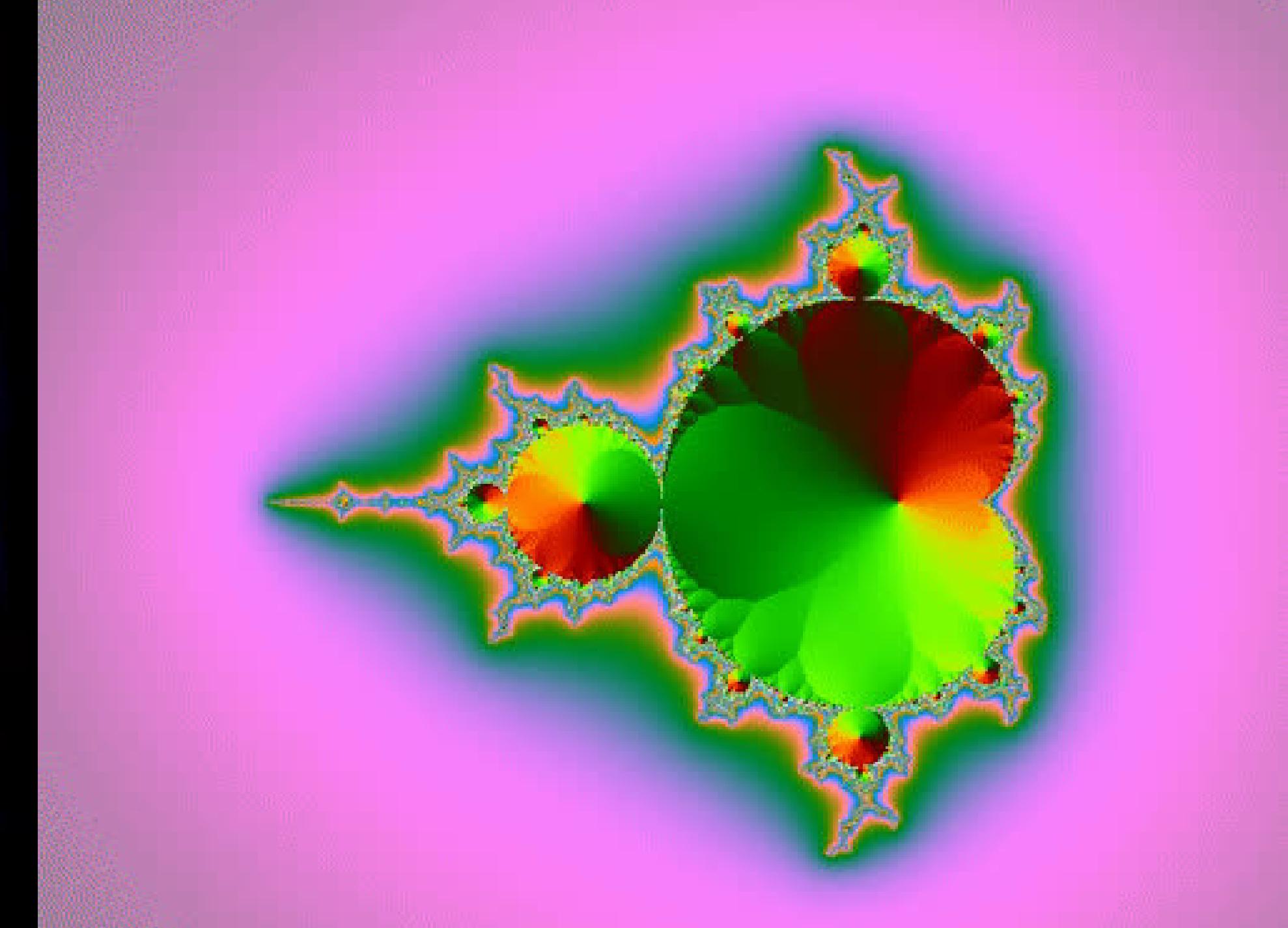
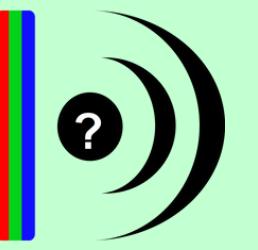
- Will play anything, even broken stuff
- Good for viewing, not good for testing to see if something is well-formed



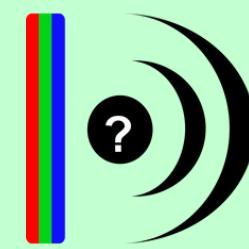
MedialInfo is a free, cross-platform and  
open-source program that displays  
technical information about media files



# CONSIDER THESE TWO VIDEO FILES

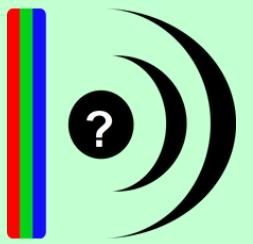


# ARE HOW THESE FILES DIFFERENT?



	SAMPLE VIDEO 1	SAMPLE VIDEO 2
Video ID	: 1	: 1
Format	: AVC	: AVC
Format/Info	: Advanced Video Codec	: Advanced Video Codec
Format profile	: High@L3	: High@L3
Format settings	: CABAC / 4 Ref Frames	: CABAC / 4 Ref Frames
Format settings, CABAC	: Yes	: Yes
Format settings, RefFrames	: 4 frames	: 4 frames
Codec ID	: avc1	: avc1
Codec ID/Info	: Advanced Video Coding	: Advanced Video Coding
Duration	: 10 s 0 ms	: 32 s 666 ms
Bit rate	: 1 000 kb/s	: 3 281 kb/s
Width	: 720 pixels	: 640 pixels
Height	: 576 pixels	: 480 pixels
Display aspect ratio	: 5:4	: 4:3
Frame rate mode	: Constant	: Constant
Frame rate	: 25.000 FPS	: 29.970 (30000/1001) FPS
Color space	: YUV	: YUV
Chroma subsampling	: 4:2:0	: 4:2:0
Bit depth	: 8 bits	: 8 bits
Scan type	: Progressive	: Progressive

# USE MEDIAINFO TO CONFIRM FILE SPECS



Frame rate mode	:	Constant
Frame rate	:	29.970 (30000/1001) FPS
Standard	:	NTSC
Color space	:	YUV
Chroma subsampling	:	4:2:2
Bit depth	:	10 bits
Scan type	:	Interlaced
Scan type, store method	:	Interleaved fields
Scan order	:	Bottom Field First
Compression mode	:	Lossless
Bits/(Pixel*Frame)	:	21.333
Stream size	:	802 MiB (99%)
Color primaries	:	BT.601 NTSC
Transfer characteristics	:	BT.709
Matrix coefficients	:	BT.601



- Media Conformance Checker
- Checks groups of files against policies
- Policies can be uploaded to or downloaded

from the web

BAVC Standard MP4

Maintainer: Morgan Morel  
License: Other

Add to my policies      Export





# MEDIACONCH



## Results

[Close all results](#)

[Apply a policy to all results](#)

Choose a new policy to apply ▾

Show 10 ▾ entries

Search:

Files	Implem	Policy	MediaInfo	MediaTrace	Status
SampleAccess01.mp4	✓ Valid	✓ BAVC Standard MP4	ⓘ ⓘ	ⓘ ⓘ	✓
SampleAccess02.mp4	✓ Valid	✗ BAVC Standard MP4	ⓘ ⓘ	ⓘ ⓘ	✓

Showing 1 to 2 of 2 entries

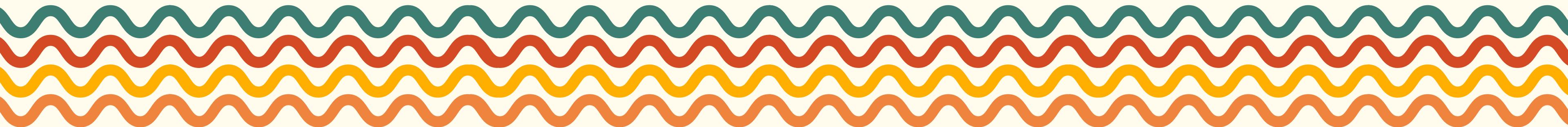
Previous 1 Next

- General/IsStreamable is Yes ✗ fail (Actual: No)
- Video/Format is AVC ✓ pass
- Video/Format\_Profile is High ✓ pass
- Video/Format\_Level is 3 ✓ pass
- Video/Format\_Settings\_CABAC is Yes ✓ pass
- Video/Format\_Settings\_RefFrames is 4 ✓ pass
- Video/CodecID is avc1 ✓ pass
- Video/Width is 640 ✗ fail (Actual: 720)
- Video/Height is 480 ✗ fail (Actual: 576)
- Video/Sampled\_Width is 640 ✗ fail (Actual: 720)
- Video/Sampled\_Height is 480 ✗ fail (Actual: 576)
- Video/DisplayAspectRatio is 1.333 ✗ fail (Actual: 1.250)
- Video/Rotation is 0.000 ✓ pass

# EXERCISE 3: EXAMINE FILES

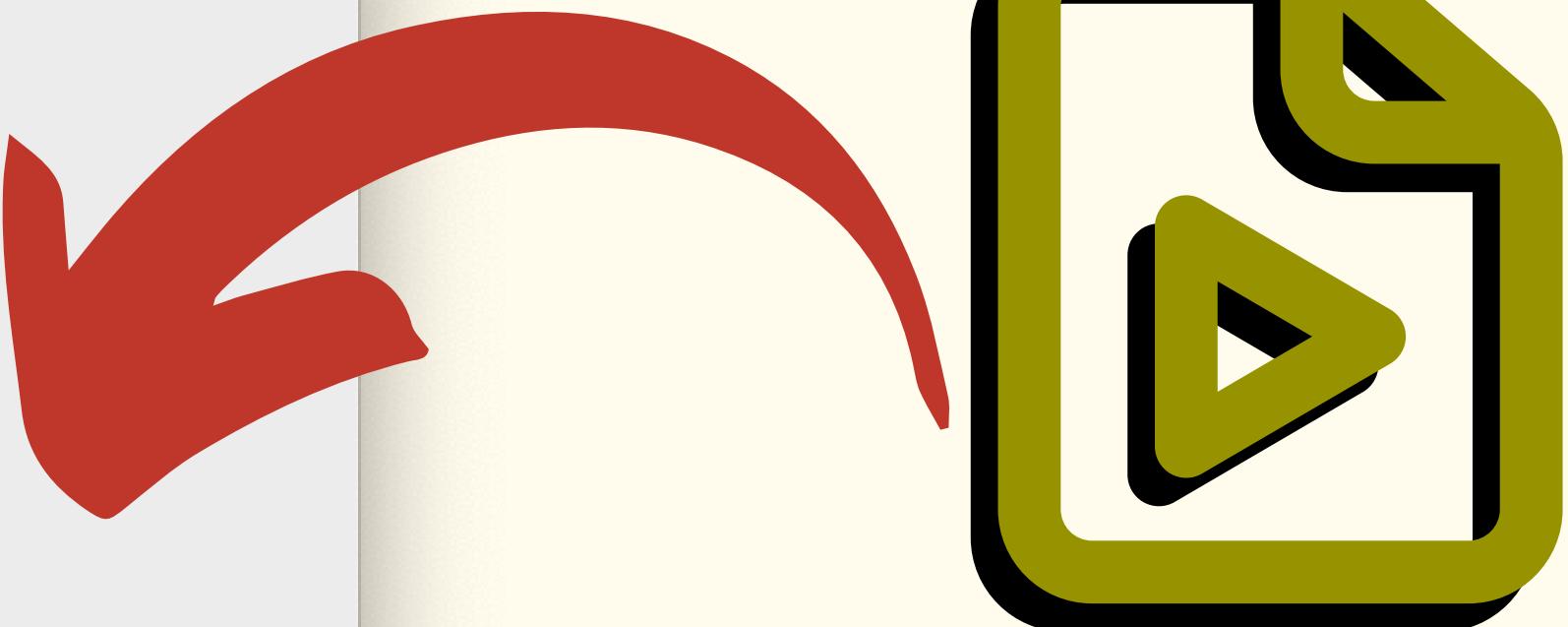
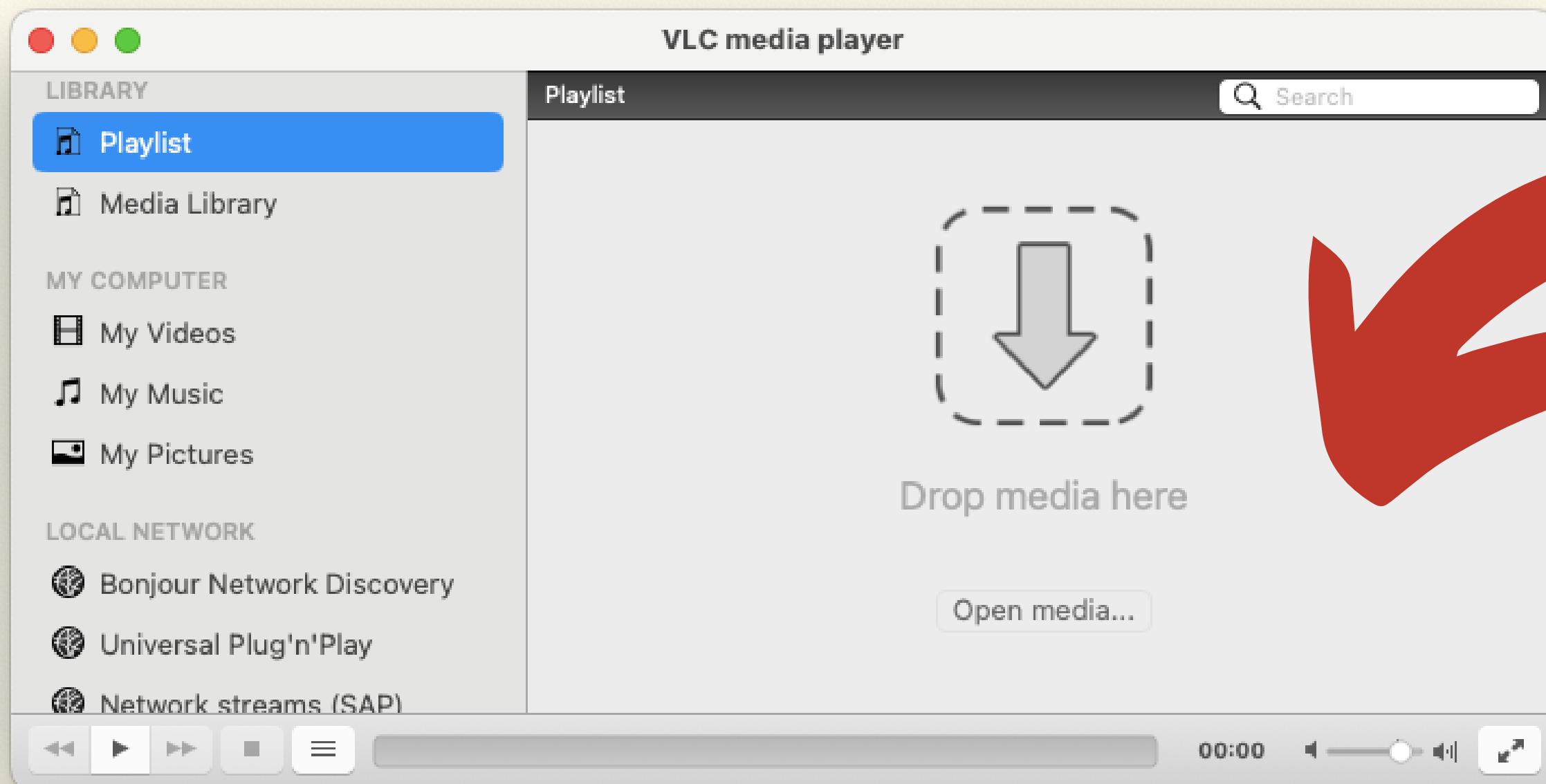
Examine the files in the Mystery Media folder you downloaded

- 1) View each file using VLC
- 2) Examine each file in MediaInfo
- 3) Run each file in the "Example MKV FFV1 digitization policy"  
MediaConch Policy



# EXERCISE 3: EXAMINE FILES

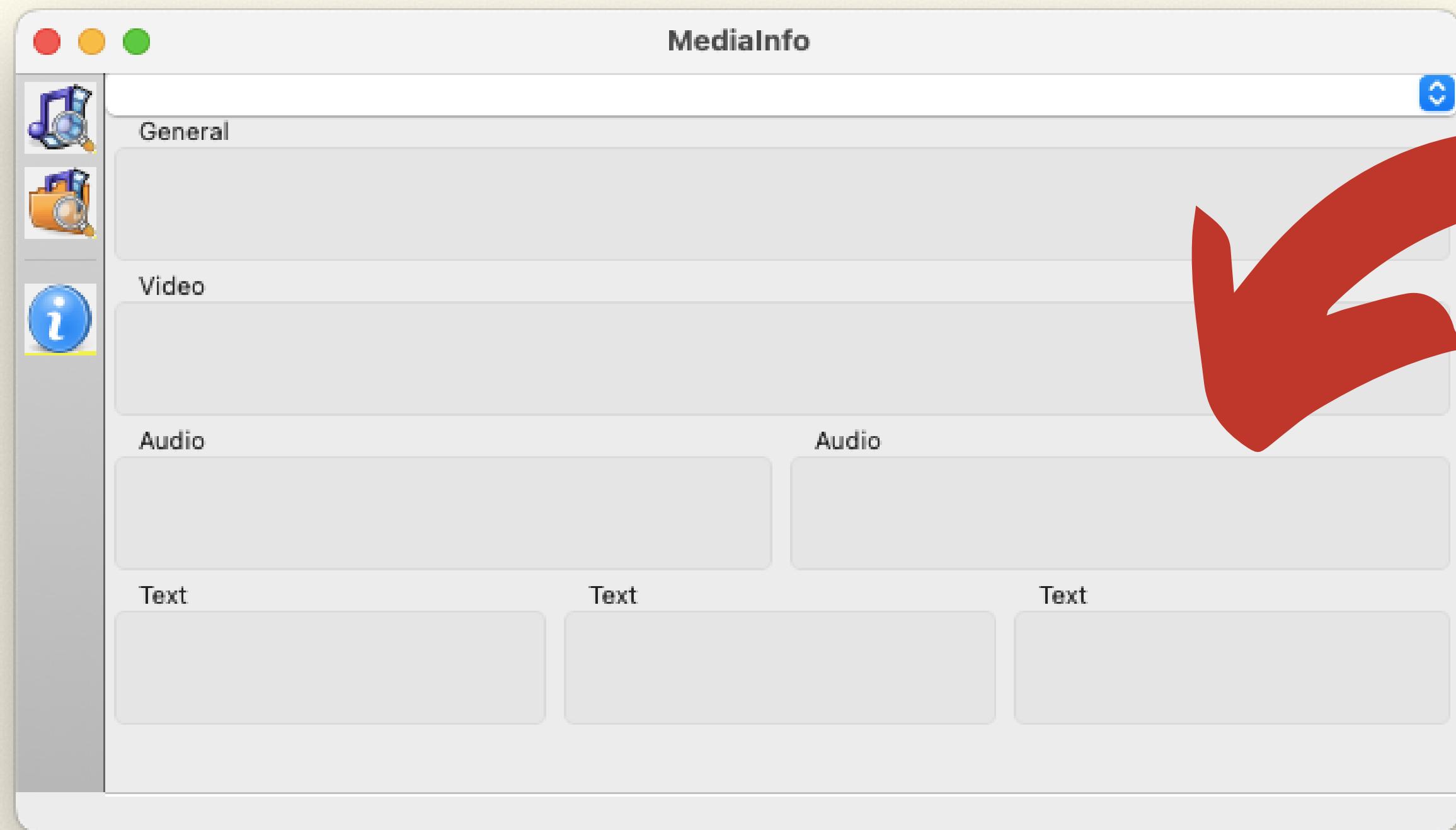
1) View each file using VLC



Drop the file  
in to view

# EXERCISE 3: EXAMINE FILES

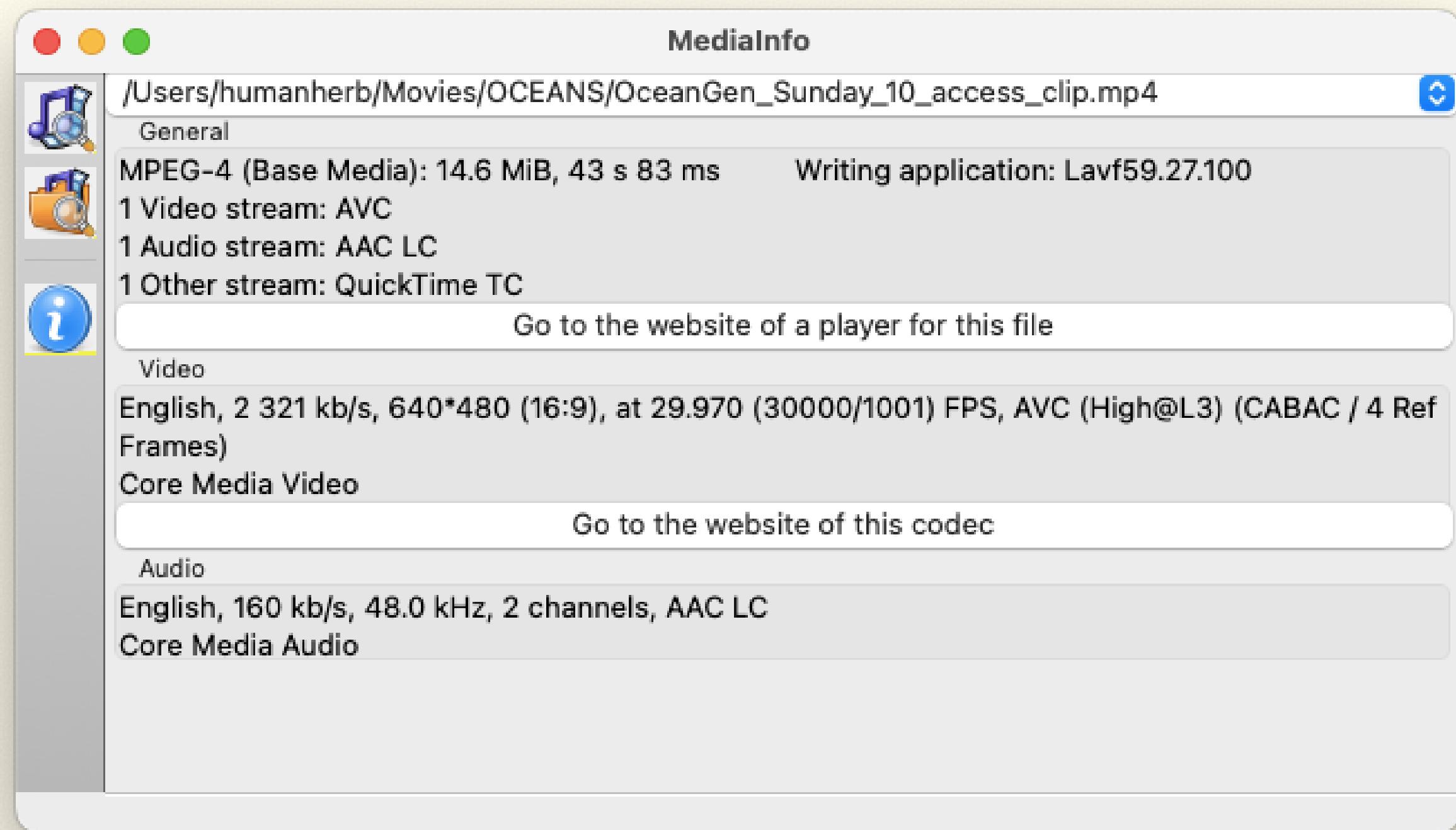
2) Examine each file in MediaInfo



Drop the file  
in to examine

# EXERCISE 3: EXAMINE FILES

2) Examine each file in MediaInfo



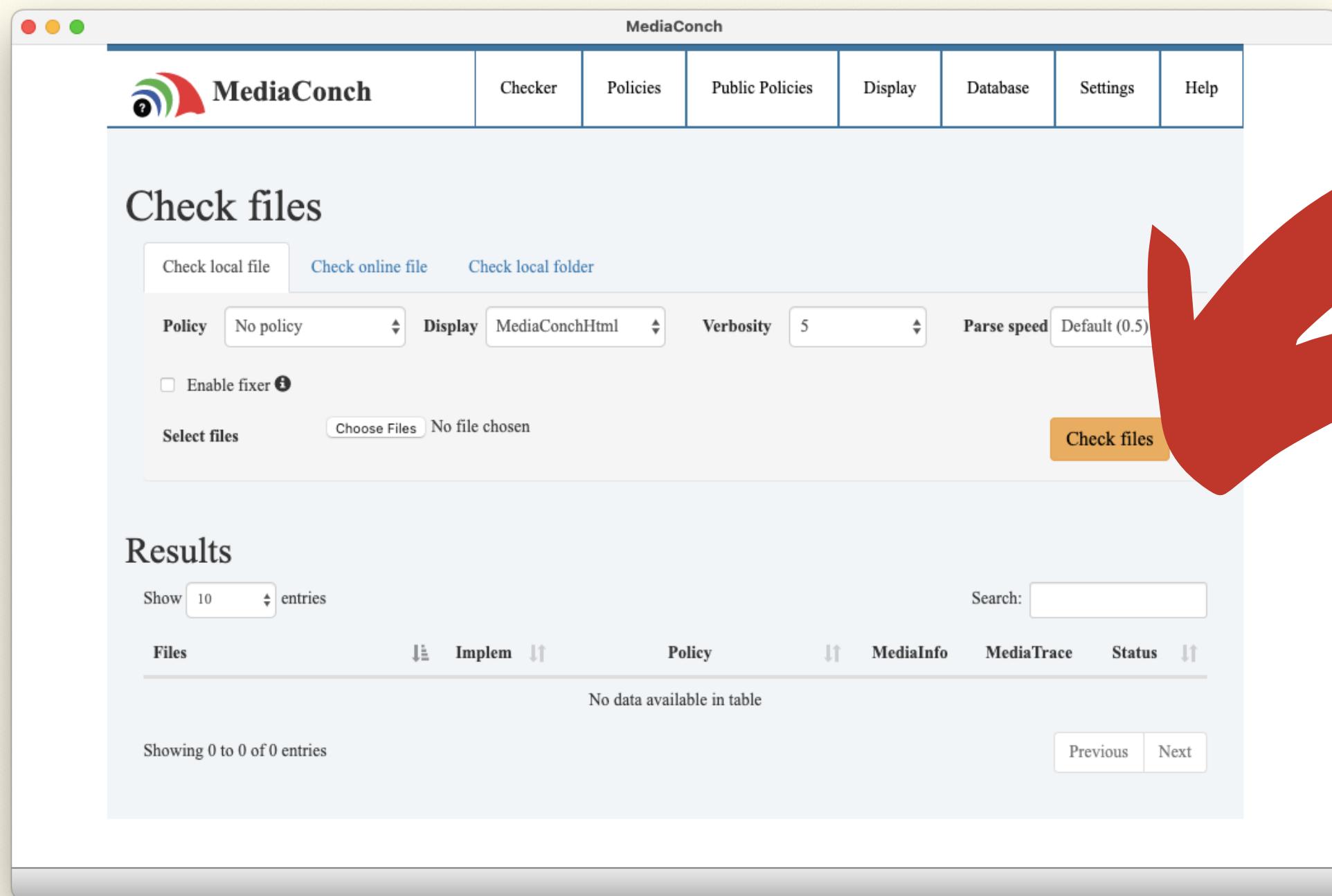
GENERAL FILE INFO

VIDEO STREAM INFO

AUDIO STREAM INFO

# EXERCISE 3: EXAMINE FILES

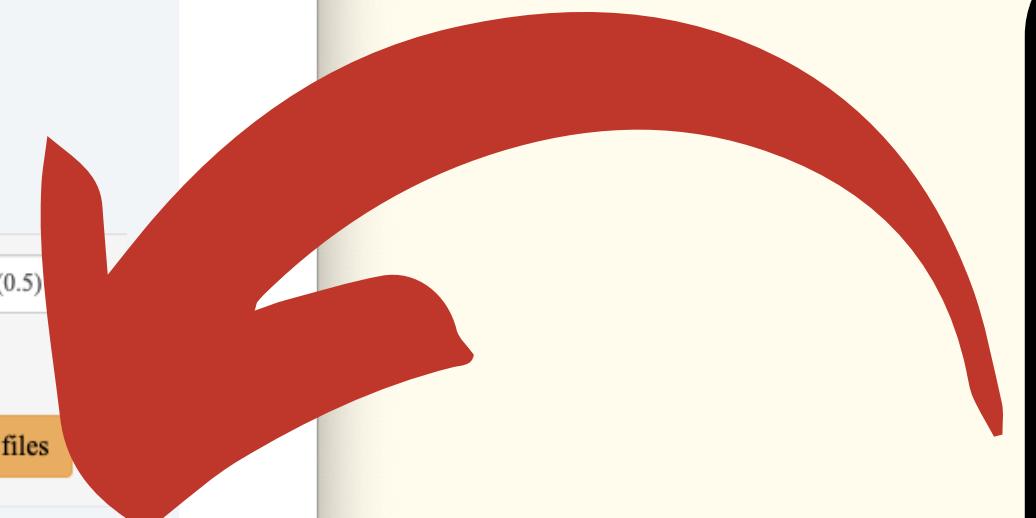
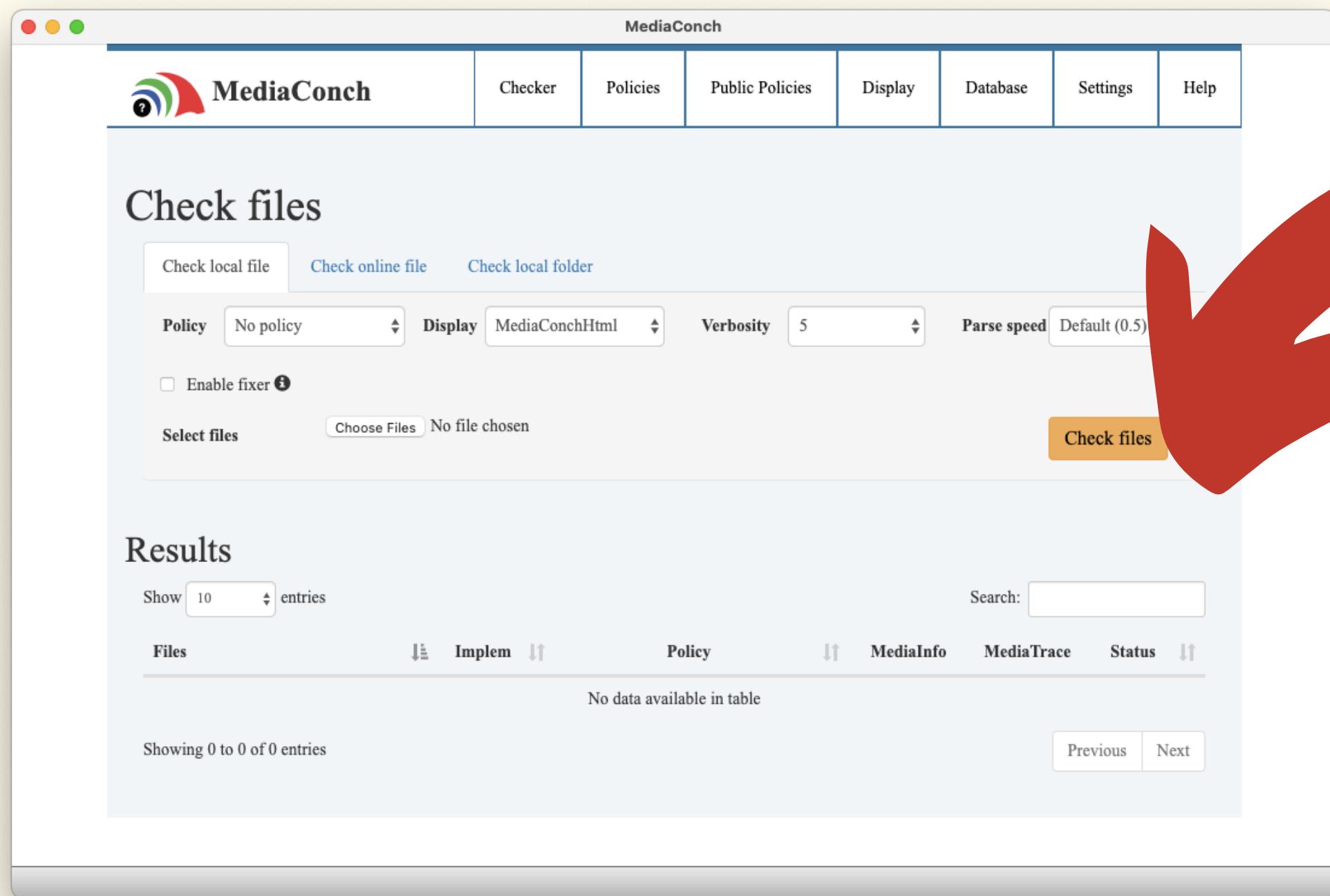
3) Examine each file in MediaConch



Drop the file  
in to examine

# EXERCISE 3: EXAMINE FILES

3) Examine each file in MediaConch



Drop the file  
in to examine

# EXERCISE 3: EXAMINE FILES

3) Examine each file in MediaConch

The screenshot shows the 'Results' page of the MediaConch application. On the left, there are buttons for 'Apply a policy to all results' and 'Show 10 entries'. Below these are sections for 'Files' and a specific entry labeled 'OceanGen\_Sunday\_10\_access'. A dropdown menu is open on the right, titled 'Choose a new policy to apply'. The menu contains several options: 'System policies', 'Is this NTSC or PAL SD?', 'Example MKV FFV1 digitization policy' (which is highlighted with a blue background), 'Matroska is well described?', 'CAVPP Preservation Master', 'MemoriaV Video files Recommendations', and 'TN2162 compliant?'. The entire screenshot is framed by a thick orange border.

Select "Example MKV FFV1 Digitization Policy" to see if the files meet the Preservation standard



# QCTOOLS



QCtools attempts to automate and analyze  
some of the data you would perform with a  
visual spot-check, as well as other  
information that you wouldn't see





# AV ARTIFACT ATLAS



## VIDEO HEAD CLOG

Video

Analog

Media Failure

Cleaning

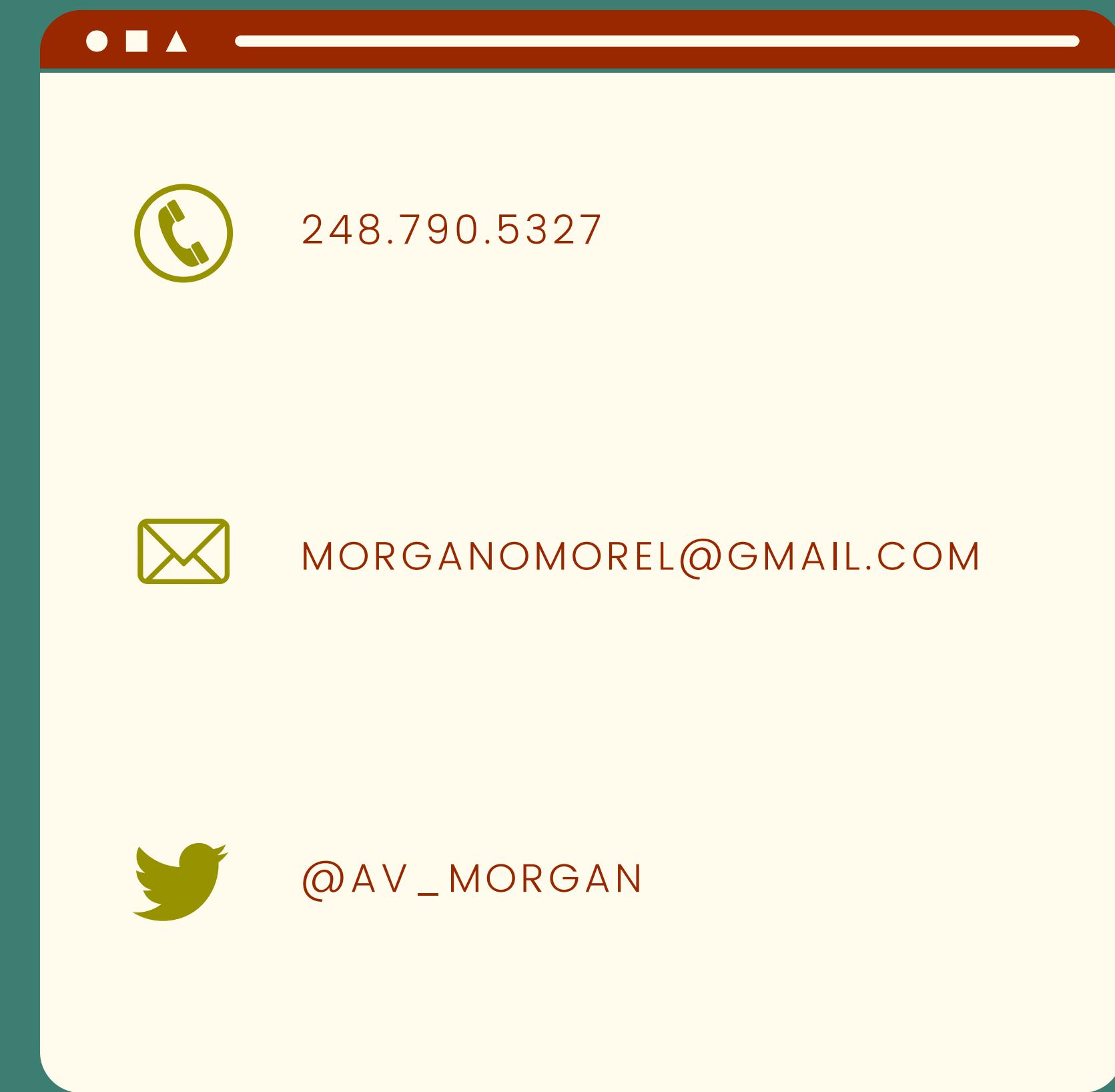
Head Clog

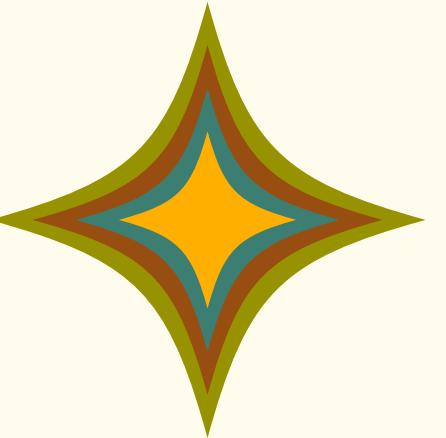
Common Artifacts

When loose oxide builds up in the tape path, it can travel with the tape to the drum assembly and prevent the video head from making contact with the tape. The result is a heavily obscured image or a complete loss of image. A video head clog requires thorough cleaning of the video heads if the clog obstructs RF completely during playback. In most cases, a severe head clog cannot be removed by playing a cleaning tape through the VTR. The head and drum assembly must be manually cleaned using a cleaning solution.

[HTTP://WWW.AVARTIFACTATLAS.COM](http://www.avartifactatlas.com)

# CONTACT ME





THANK YOU!



# CONSIDER THESE TWO VIDEO FILES

