

PREPARING FOR VIDEO DIGITIZATION

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

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

7:20 pm - 5 minute break

7:25 pm - Workshop Time Block 2

7:55 pm - 5 minute break

8:00 pm - Workshop Time Block 3

8:25 pm - Closing from People's Media Record

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

DAY ONE OUTLINE

Block 1

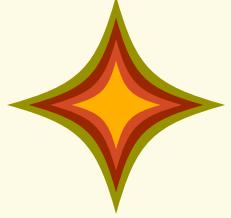
Introduction



Preservation
Fundamentals



Exercise 1

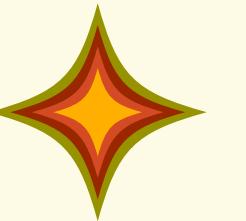


Break

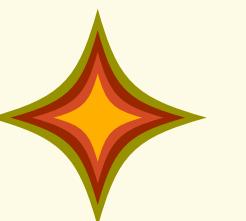


Block 2

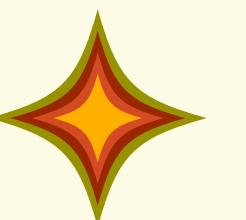
Physical Media
Format



Preservation
Formats

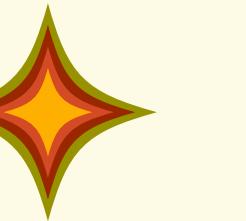


Exercise 2



Block 3

Preservation
Software



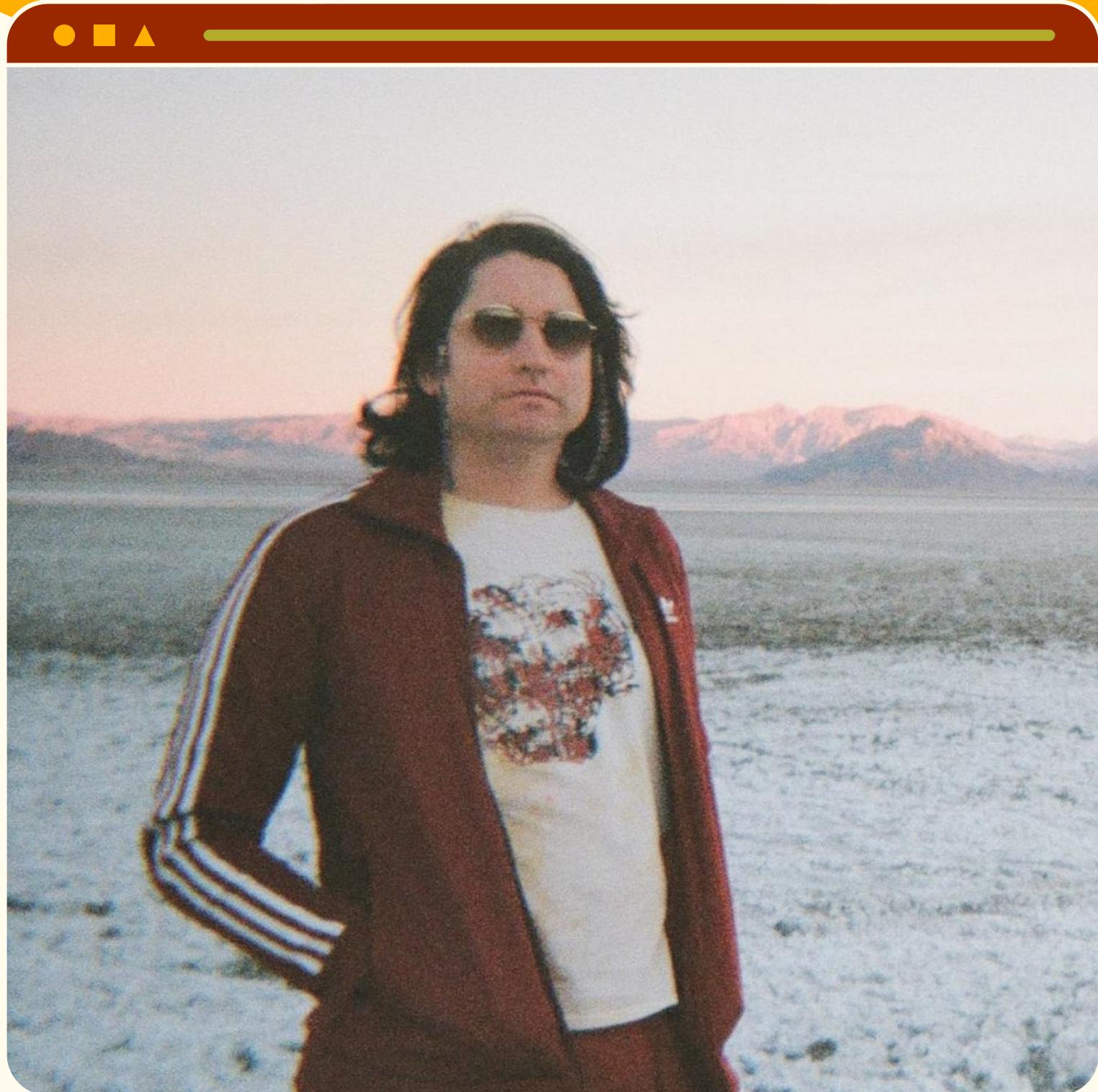
Exercise 3





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
- Metadata
- Streams
- Encoding vs Container
- Open Source
- 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

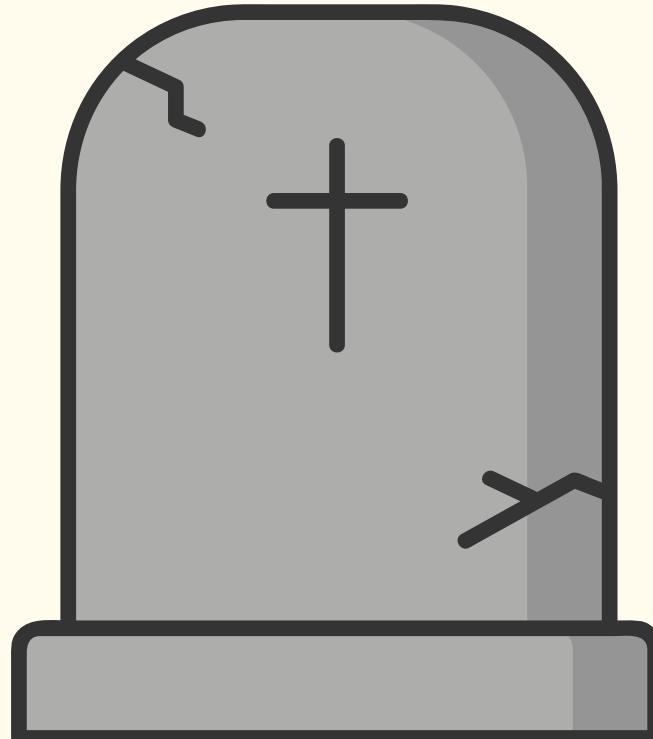
- Degradation and Obsolescence
- Analog vs Digital
- Digitization vs Migration
- Metadata**
- Streams vs Container
- Encoding vs Container
- Open Source**

- Types of Loss
- Compression
- Interlacing
- Resolution
- Checksums and Fixity**
- Preservation vs Access**

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

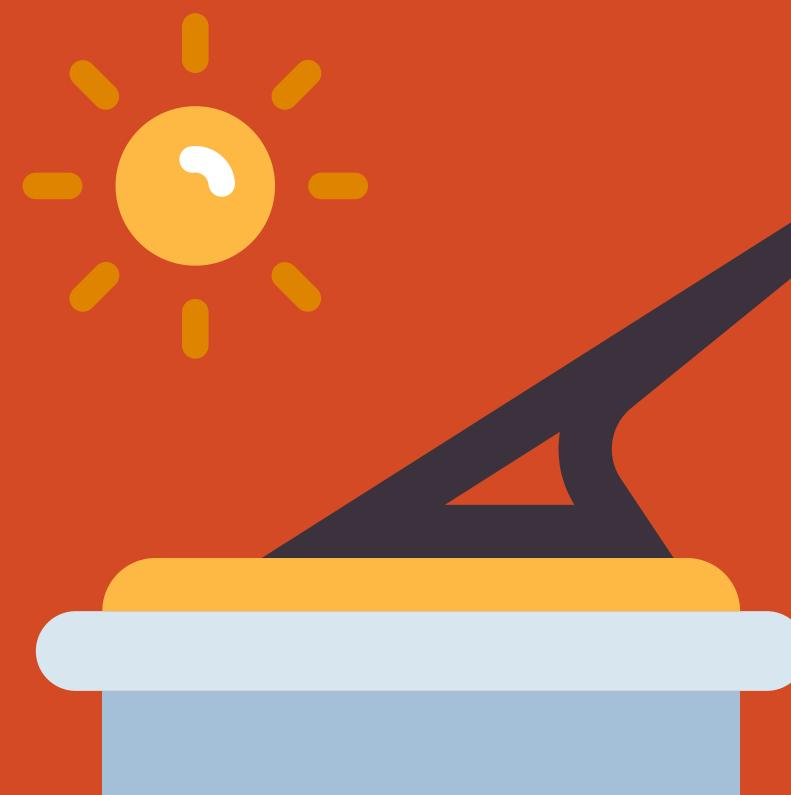
DEGRADATION AND OBSOLESCENCE

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

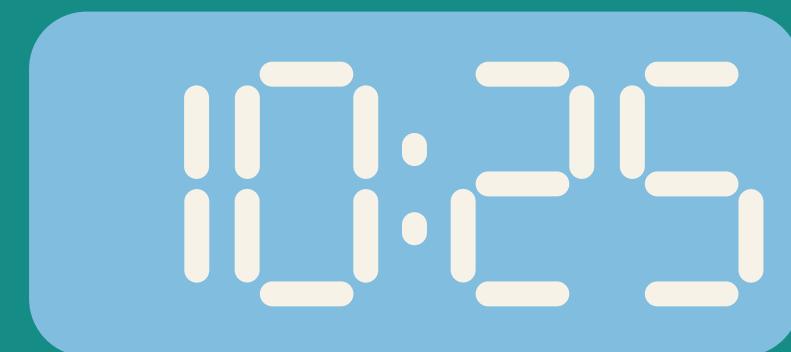


MANY VIDEO FORMATS RELY ON OBSOLETE TECHNOLOGY TO BE PLAYED BACK, AND THUS TO BE PRESERVED

ANALOG

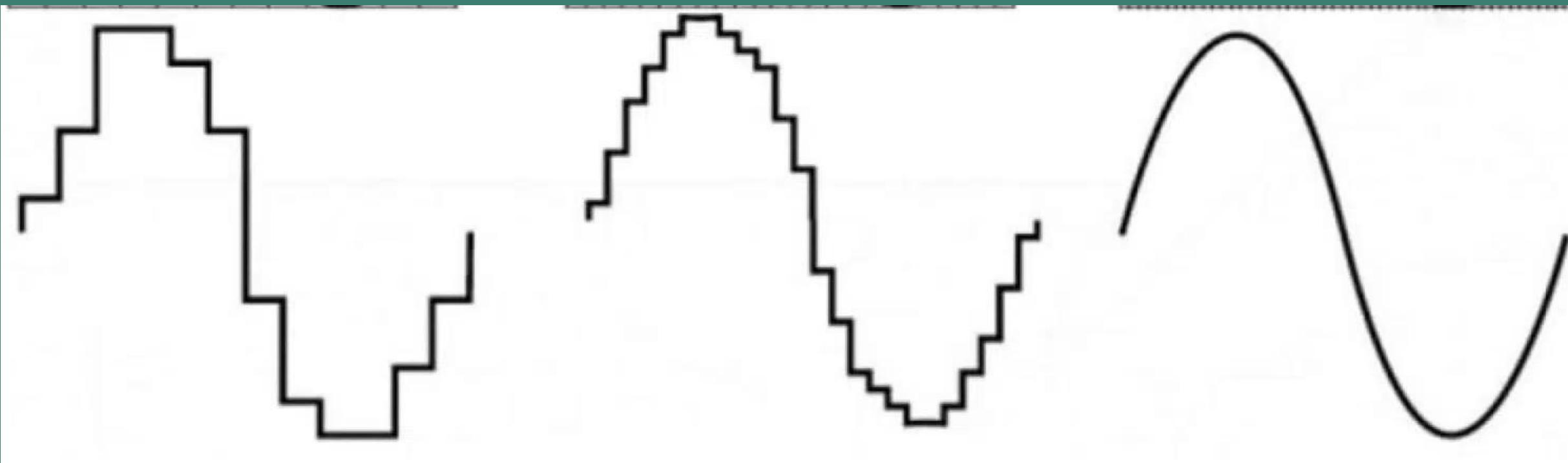
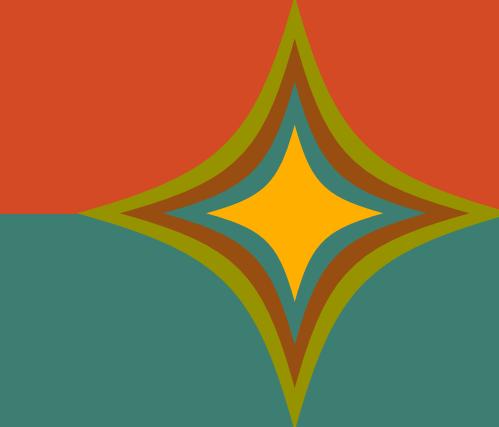
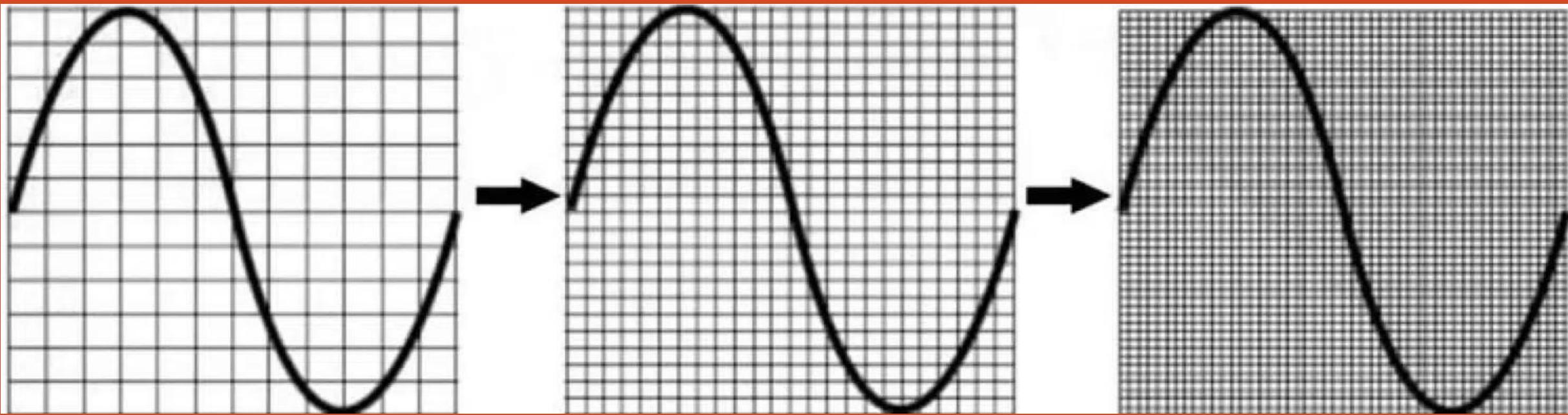


DIGITAL



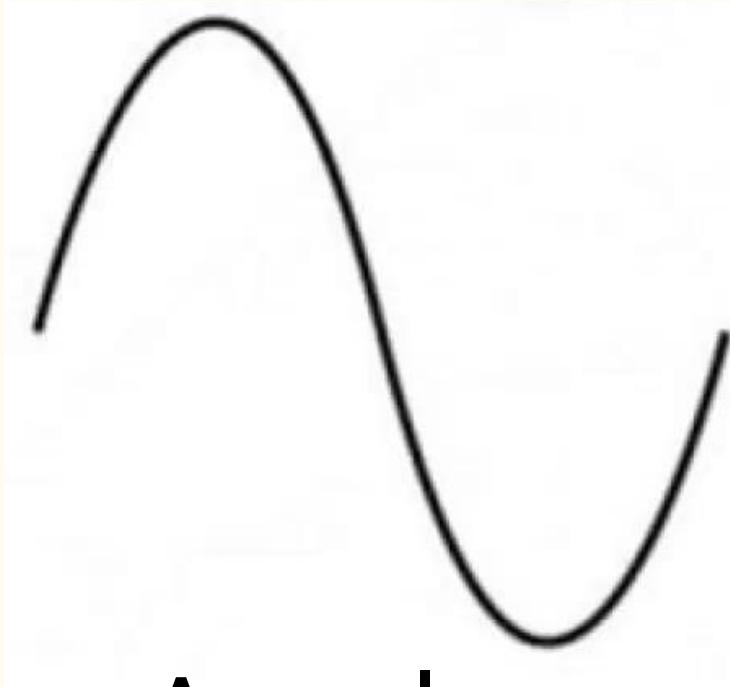
10100101010101100
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ANALOG

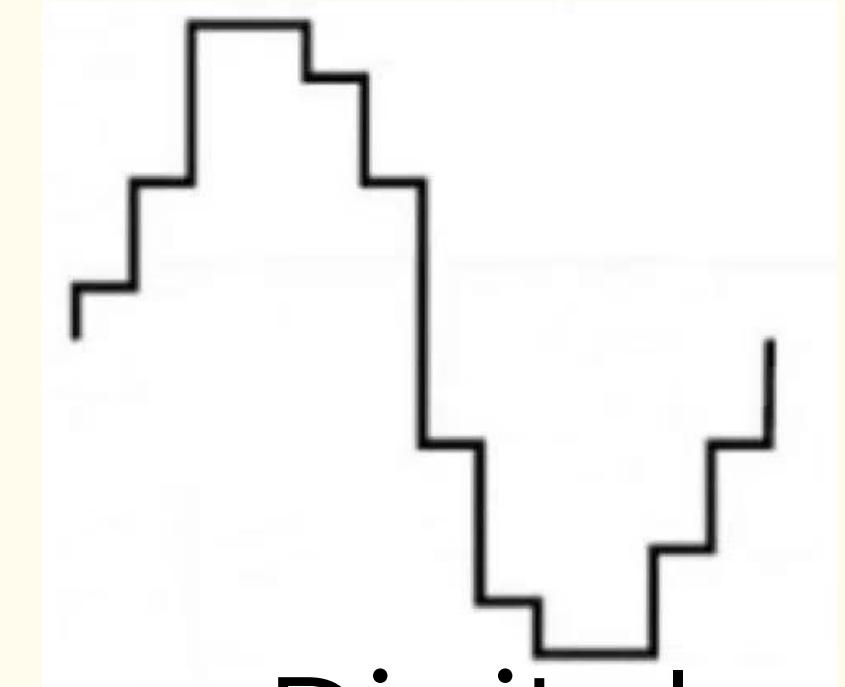


DIGITAL

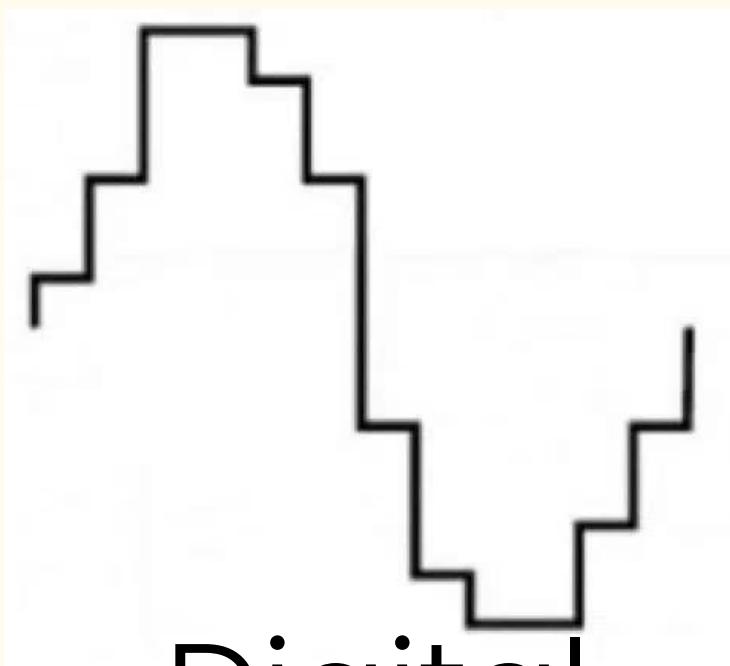
DIGITIZATION VS MIGRATION



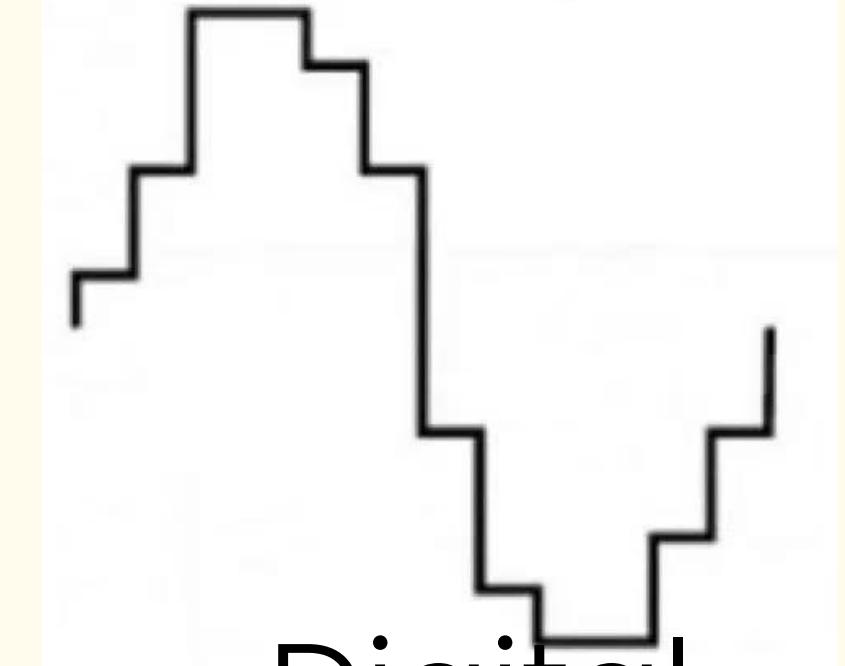
Analog



Digital

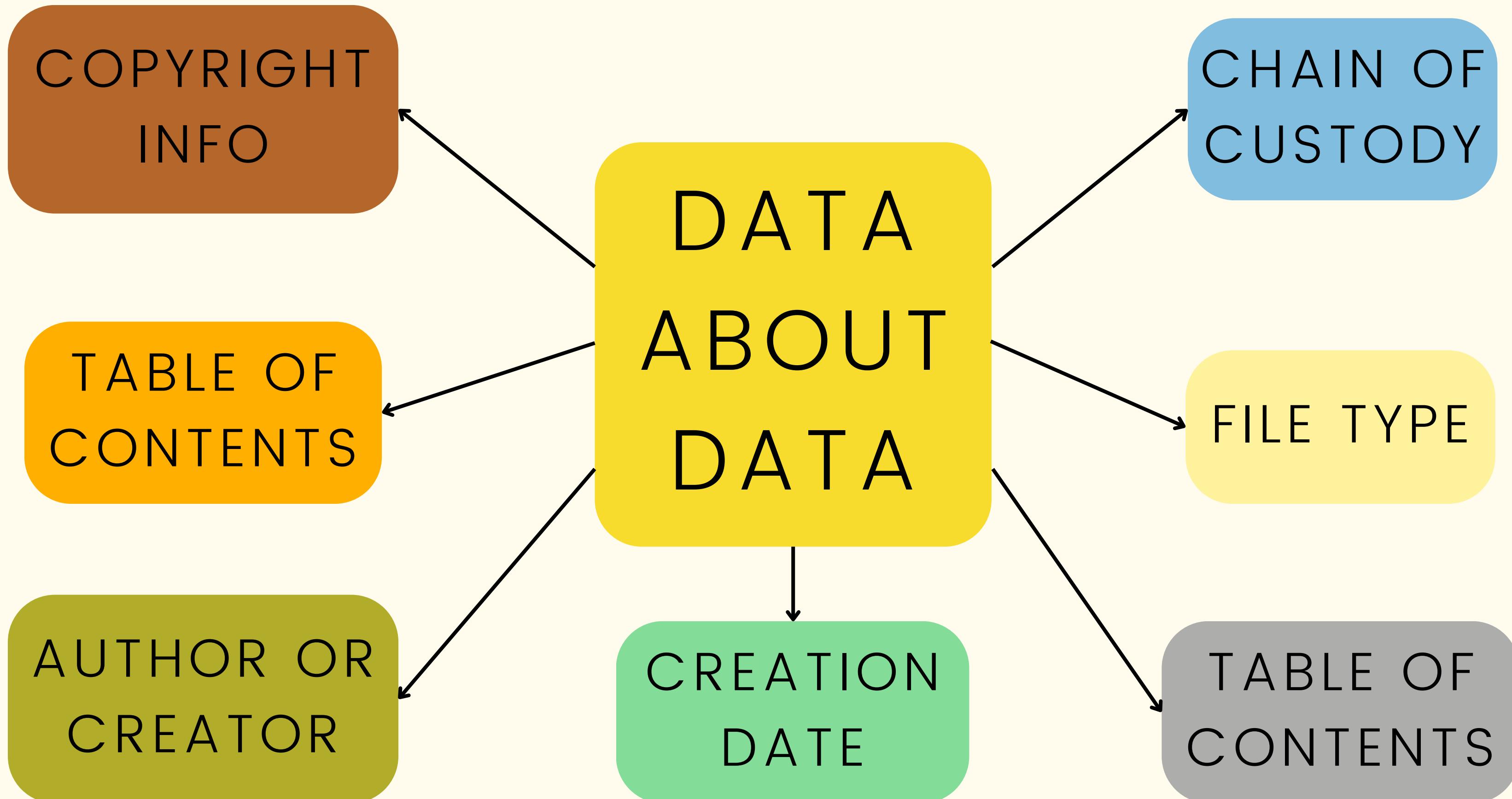


Digital



Digital

METADATA



STREAMS

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

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



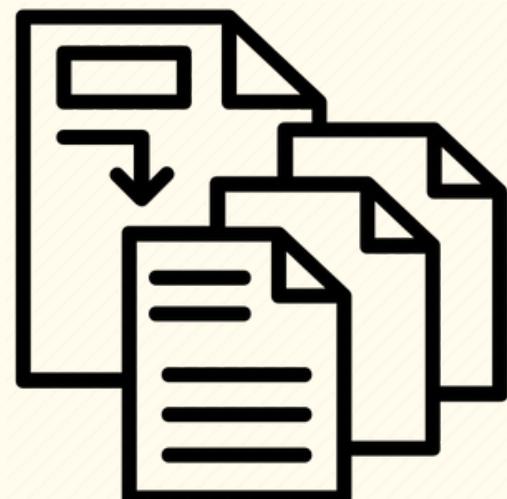
Video



Captions



Audio

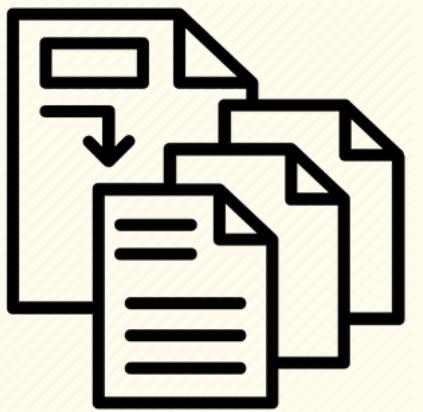


Metadata

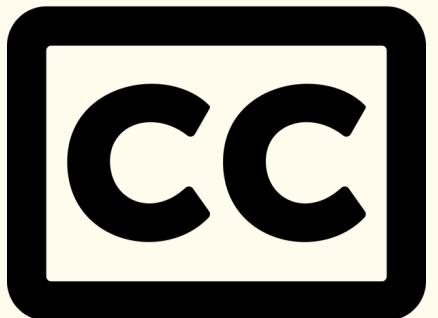
ENCODING VS CONTAINER



Video



Metadata



Captions



Audio



Encoding

How the streams of a file are formatted

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

PROPRIETARY VS OPEN SOURCE

Encodings and Wrappers can be owned by companies, making them **Proprietary**

Open Source formats can be freely modified and distributed, making them easier to maintain for long-term preservation

TYPE OF LOSS

QUALITY

PHOTOCOPY OF A PHOTOCOPY

STREAM

CHAPTERS OF A BOOK MISSING

ORGANIZATION

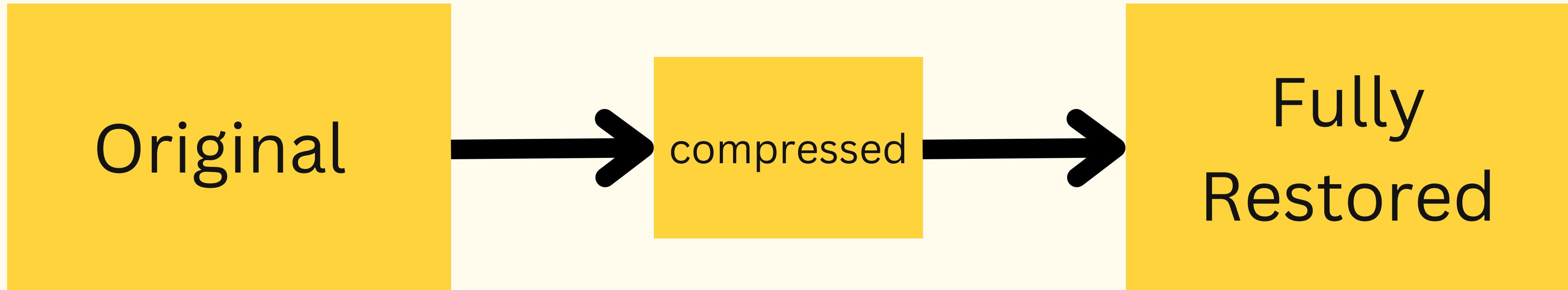
PAGES OF A BOOK OUT OF ORDER

METADATA

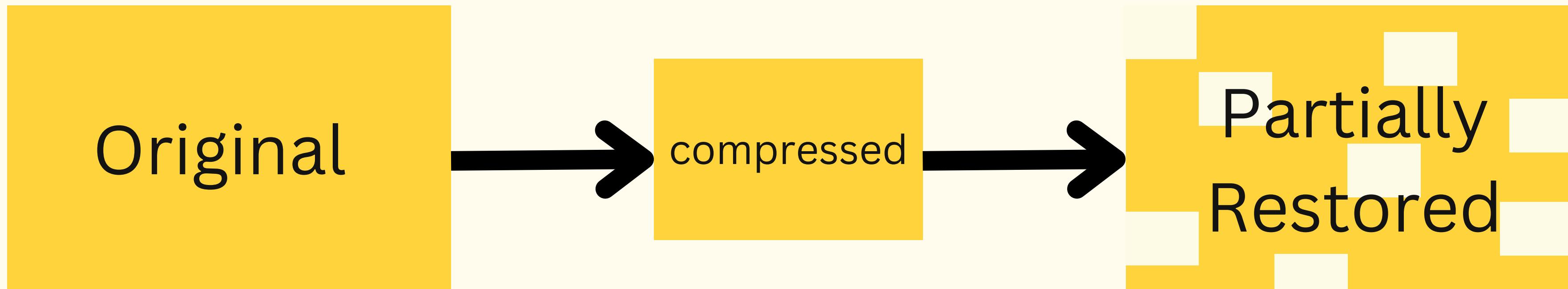
TABLE OF CONTENTS INCORRECT

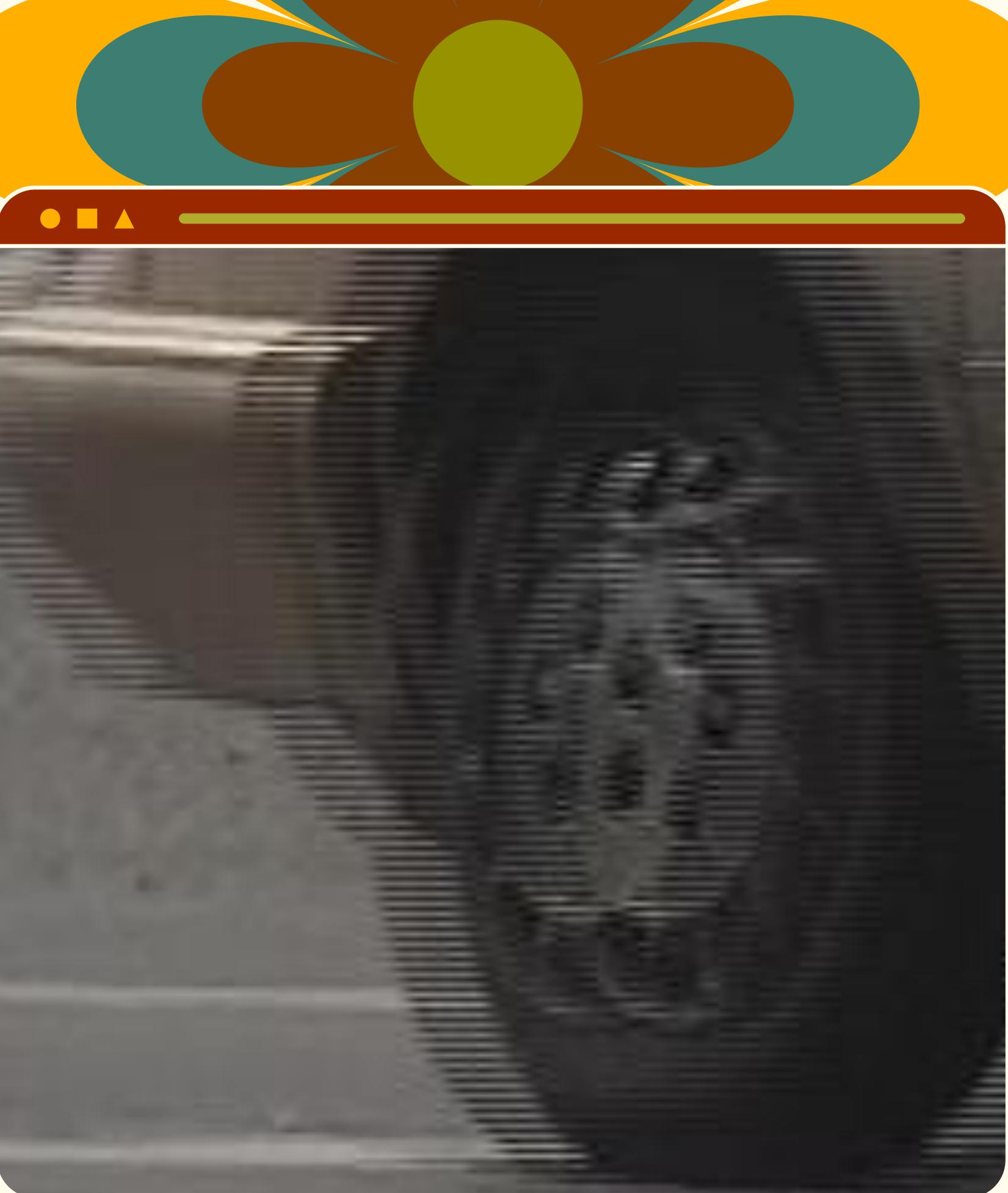
TYPE OF COMPRESSION

Lossless



Lossy



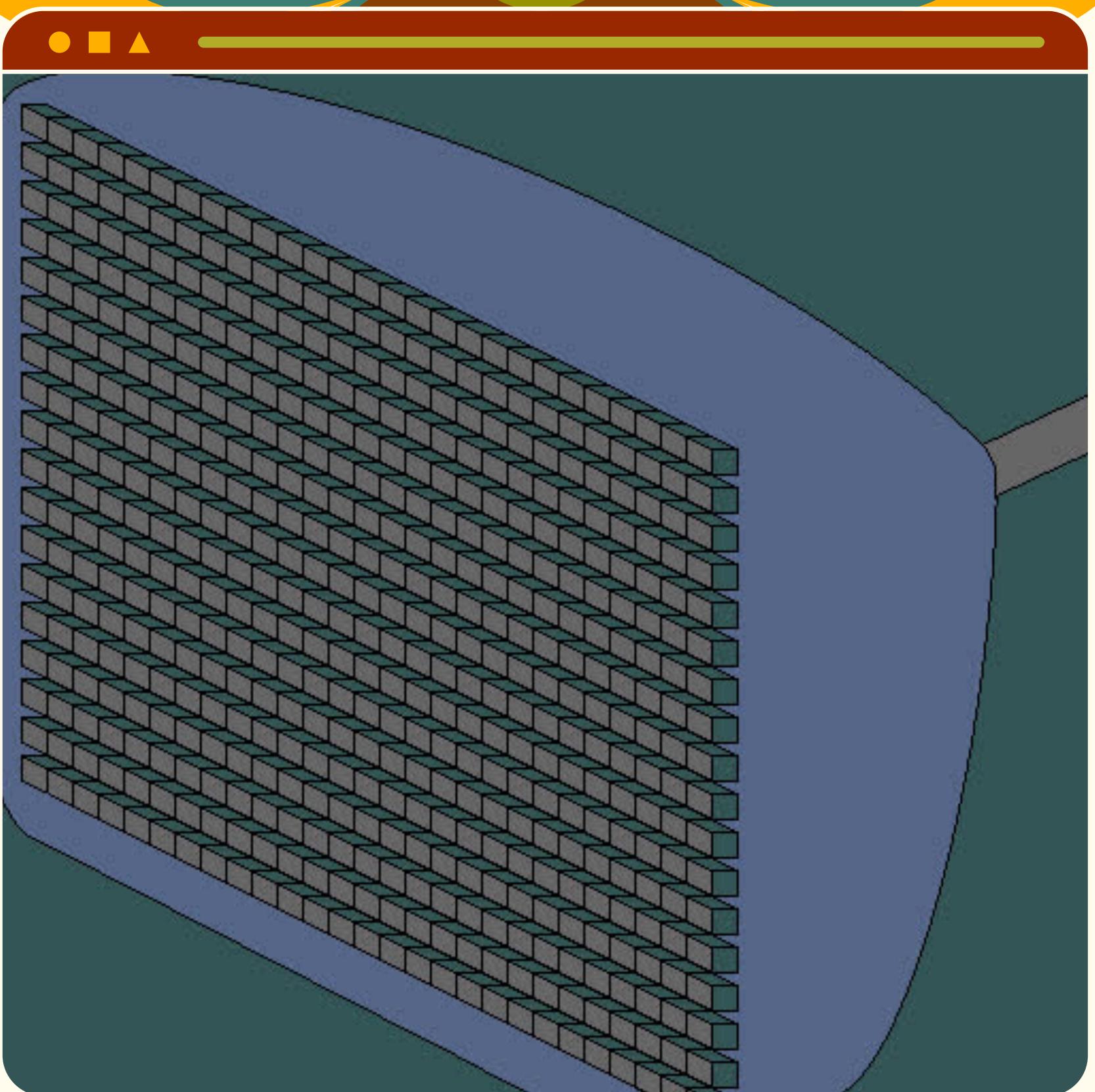


INTERLACING

- Looks like horizontal lines tearing across the video
- ALL analog video is interlaced
- 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

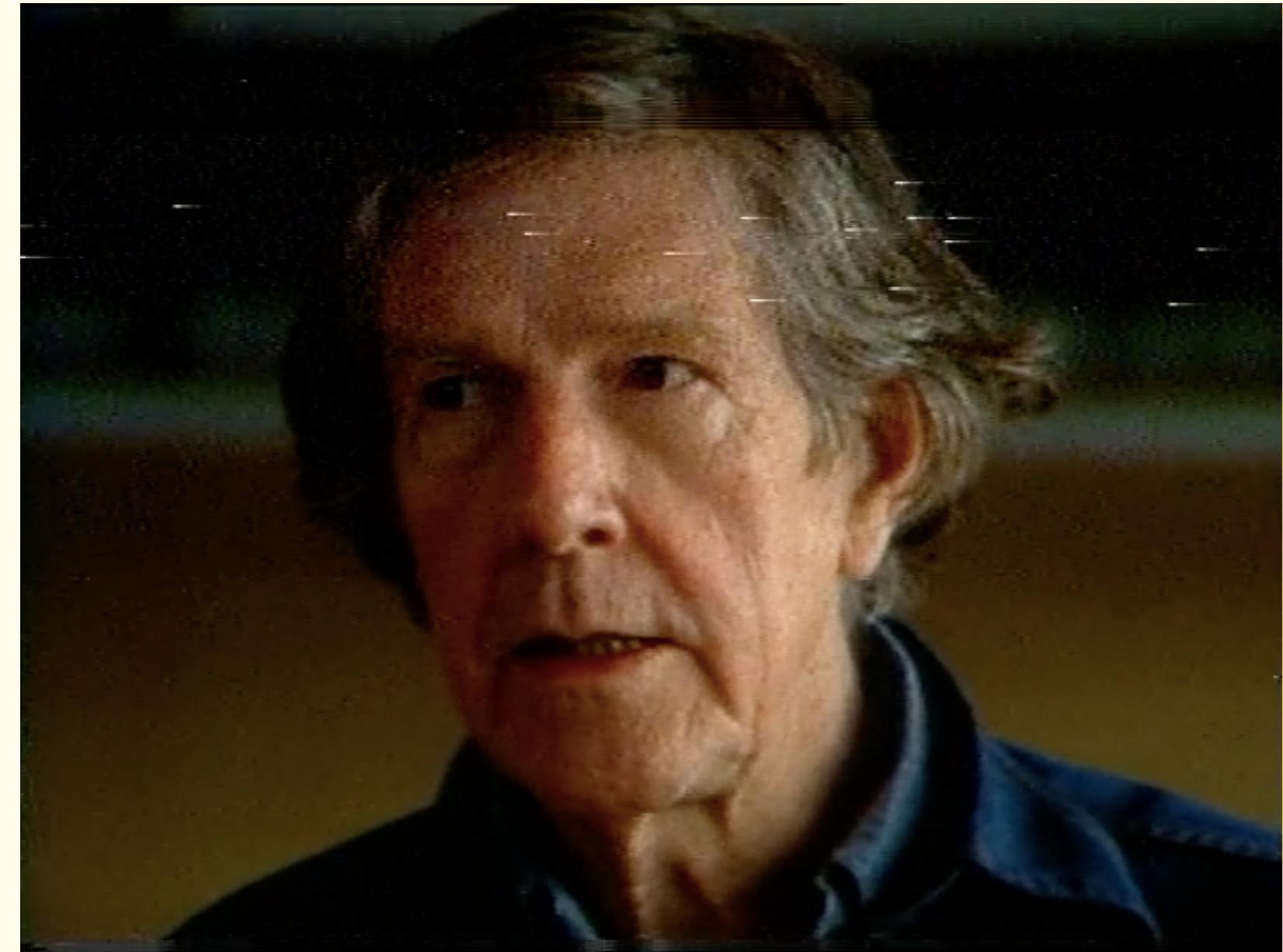
RESOLUTION

Analog video is always
720x486 (Standard Definition)

The picture frame is 486 lines tall.

When digitized, each line is turned into 720 pixels

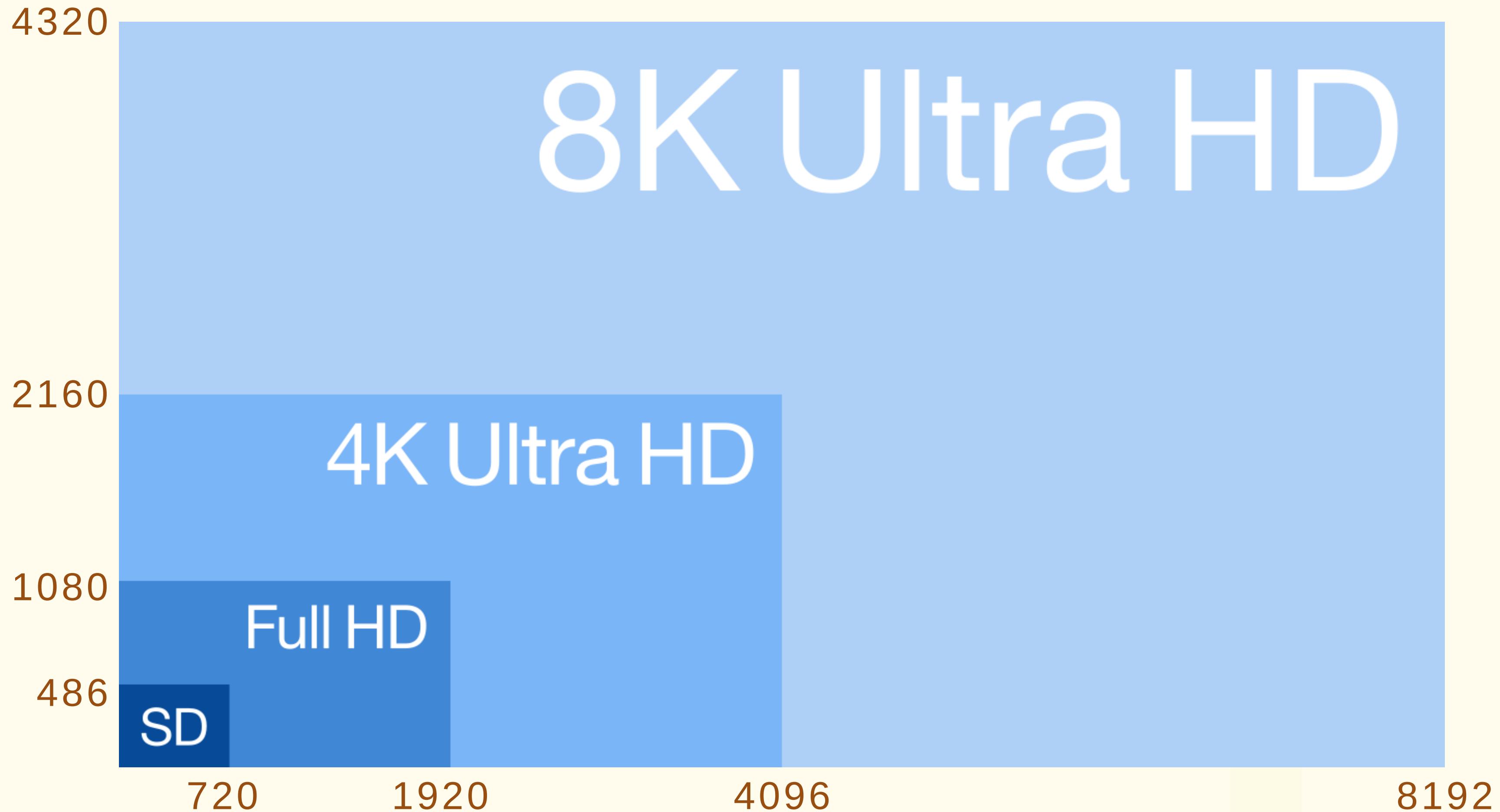
Digital Video is 480 lines tall because it's divisible by 4



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

720
486

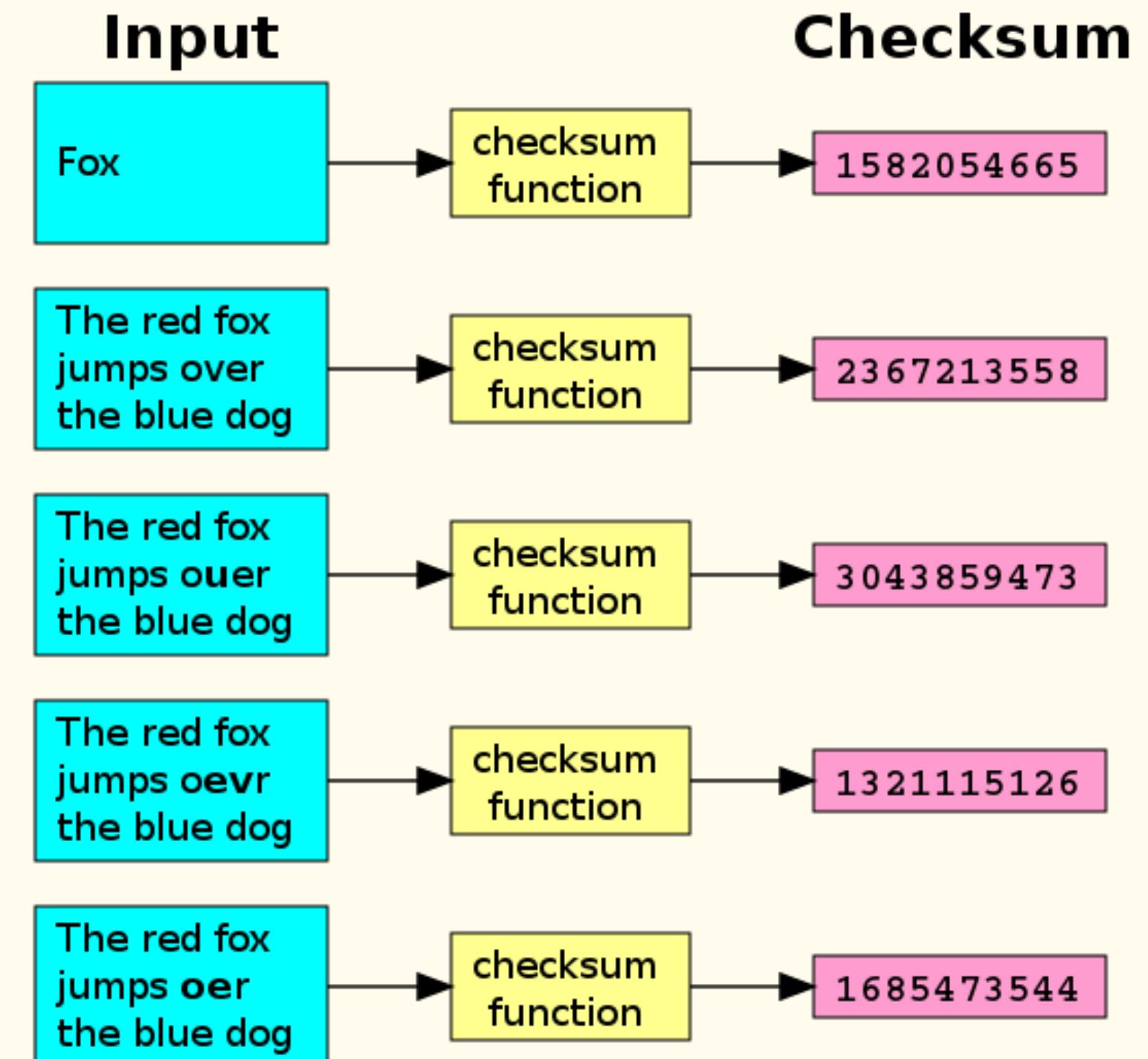
RESOLUTION



CHECKSUMS AND FIXITY

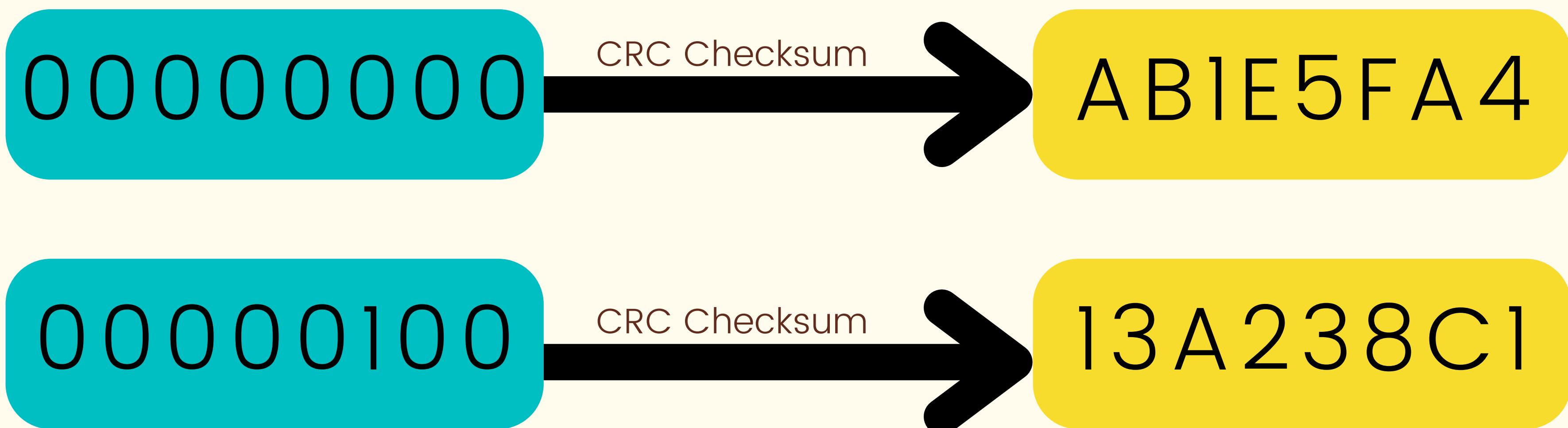
Fixity is the assurance that a digital file has remained unchanged, i.e. fixed.

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
- minimal/no loss
- Stable file format
- If compressed, must be lossless
- Interlaced to match source
- Internal checksums

ACCESS

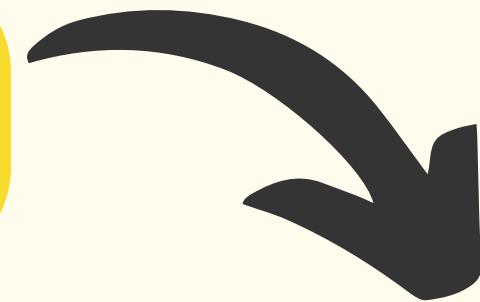
- Looks good on a screen
- Streamable
- Audio is loud and clear
- Blank audio channels are removed
- Unimportant content is removed
- Highly compressed
- Deinterlaced

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

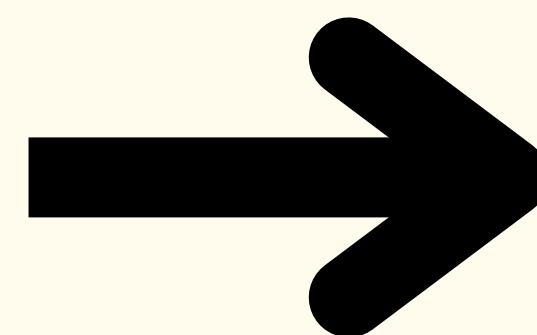
I'LL SHOW YOU EXAMPLE FILES LIKE THIS



File - Format / Wrapper

- File Attribute 1
- File Attribute 2
- File Attribute etc...

AND YOU DECIDE WHAT
USE CASES THEY WOULD
BE BEST SUITED FOR



PRESERVATION
PRODUCTION
ACCESS



EXERCISE 1: FILE USE CASES

File 1 - MP4 / H264

- Proprietary
- Highly Lossy Cmprsn
- Deinterlaced
- Audio Levels Boosted
- 720x480
- 100MB / hour

File 2 – ProRes / MOV

- 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 – ProRes / MOV

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

• PRODUCTION



EXERCISE 1: FILE USE CASES

File 3 - MOV / v210

- Proprietary
- Uncompressed
- Interlaced
- 720x486
- 100GB / hr

File 4 - MKV / FFV1

- Open Source
- Lossless compression
- Interlaced
- 720x486
- Internal Checksums



EXERCISE 1: FILE USE CASES

File 3 - MOV / v210

- Proprietary
- Uncompressed
- Interlaced
- 720x486
- 100GB / hr
- PRESERVATION

File 4 - MKV / FFV1

- Open Source
- Lossless compression
- Interlaced
- 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 levels boosted
- 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 levels boosted
- 1920x1080
- 400MB / hr

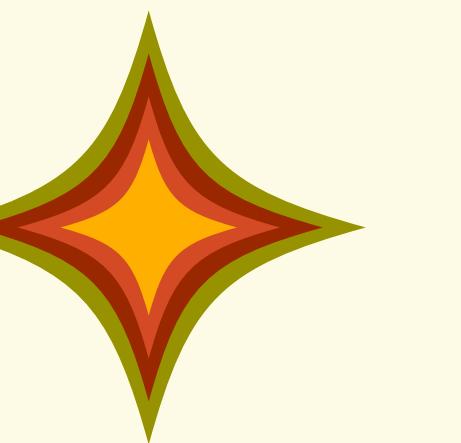
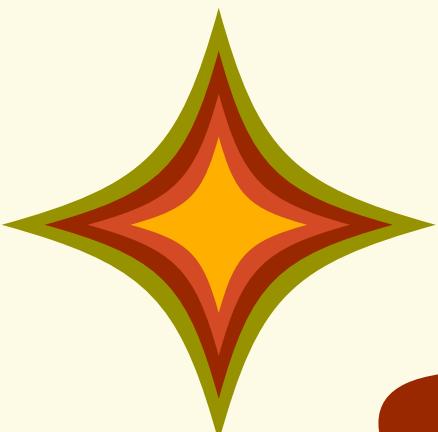
• ACCESS

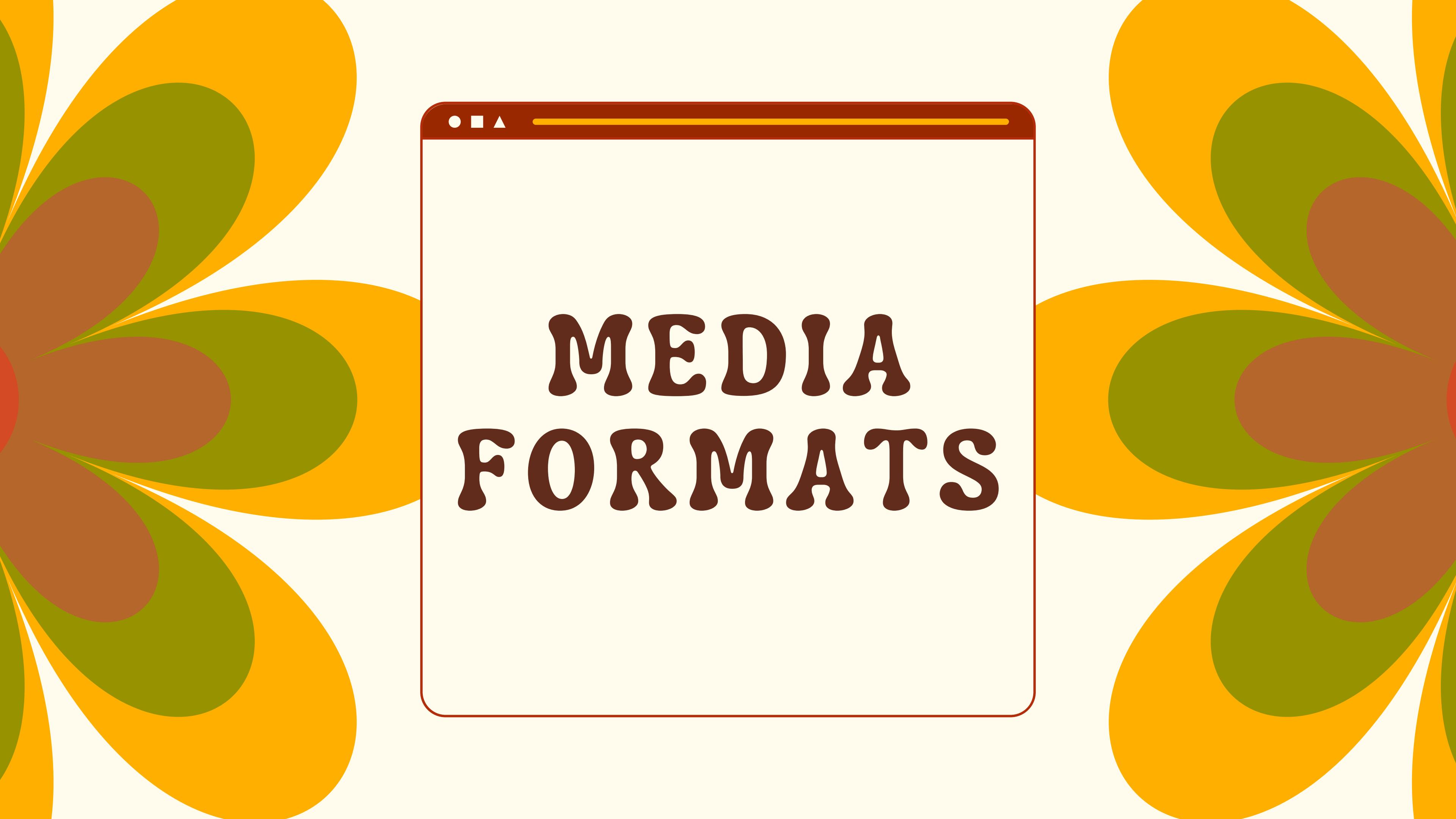


PART ONE RECAP

- ◆ 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

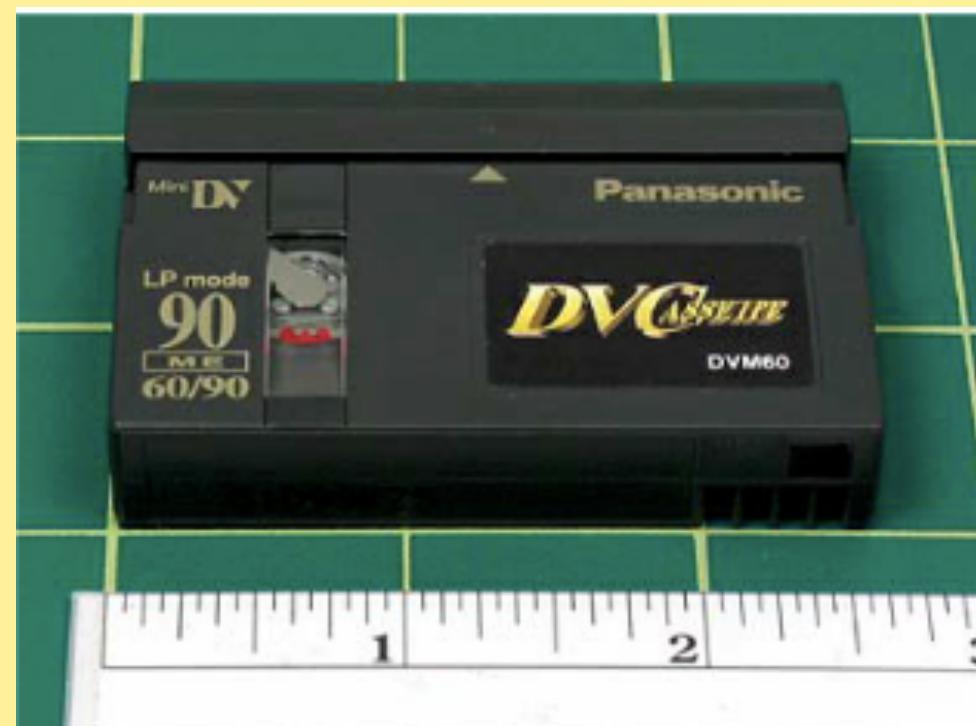
DIGITAL TAPE

- 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)
- Contains Digital Metadata on tape
- 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





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



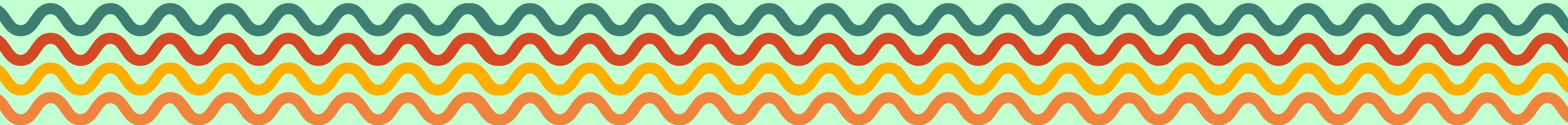
ANALOG
TAPE

DIGITAL
TAPE

OPTICAL
DISC

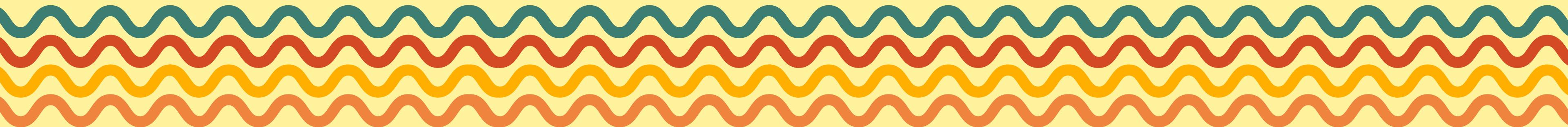
ANALOG TAPE

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, including
metadata present on the tape
(migration)



OPTICAL DISC

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

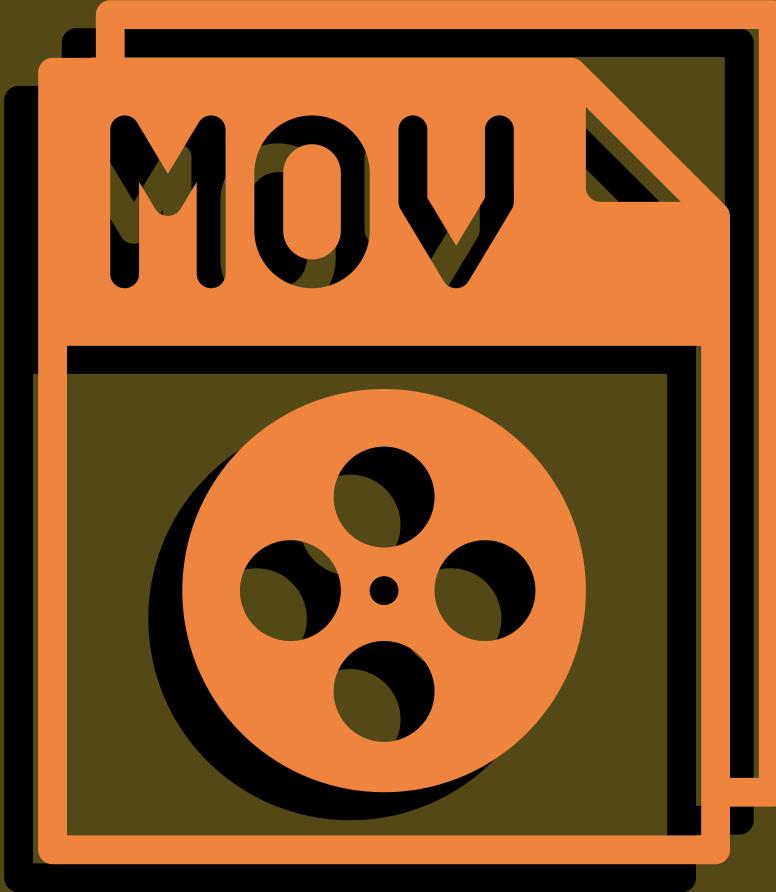


ACCESS



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 can be freely modified and distributed
 - *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
 - Expensive to Implement
 - 40-50 GB/hr SD NTSC
- **Losslessly Compressed FFv1 -> MKV**
 - Open Source
 - Cheap to Implement
 - 35-55 GB/hr SD NTSC

PRES FORMAT FOR ANALOG TAPE

QUALITY

DEPENDS ON QUALITY OF VIDEO CONVERSION

STREAM

NEED TO FIND A FORMAT THAT PROPERLY CAPTURES ALL STREAMS

ORGANIZATION

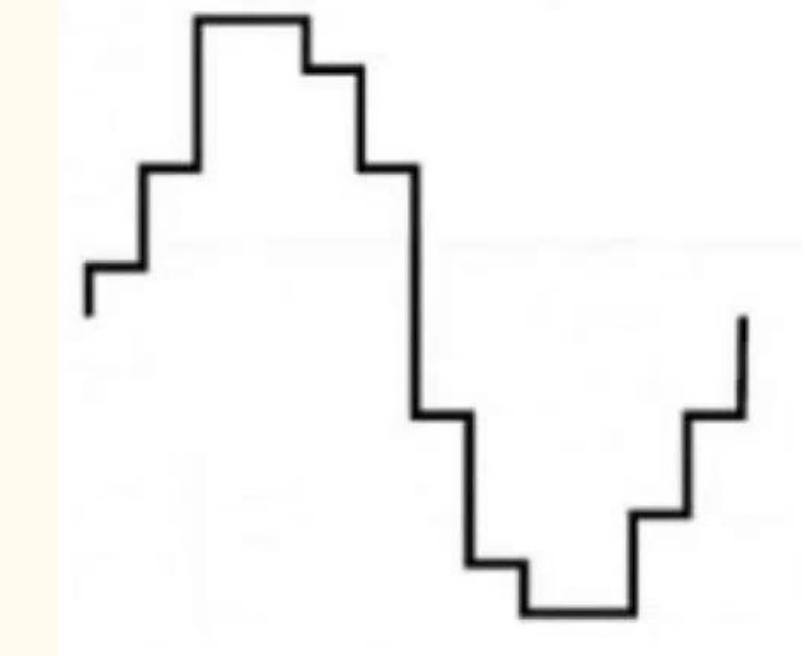
MAKE SURE LEFT AND RIGHT AUDIO CHANNELS ARE PROPERLY CAPTURED

METADATA

DESCRIPTIVE INFO ON TAPE LABEL NEEDS TO BE MANUALLY TRANSCRIBED

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 FORMAT FOR DIGITAL TAPE

QUALITY

EXACT BIT FOR BIT COPY

STREAM

ALL STREAMS RETAINED EXACTLY

ORGANIZATION

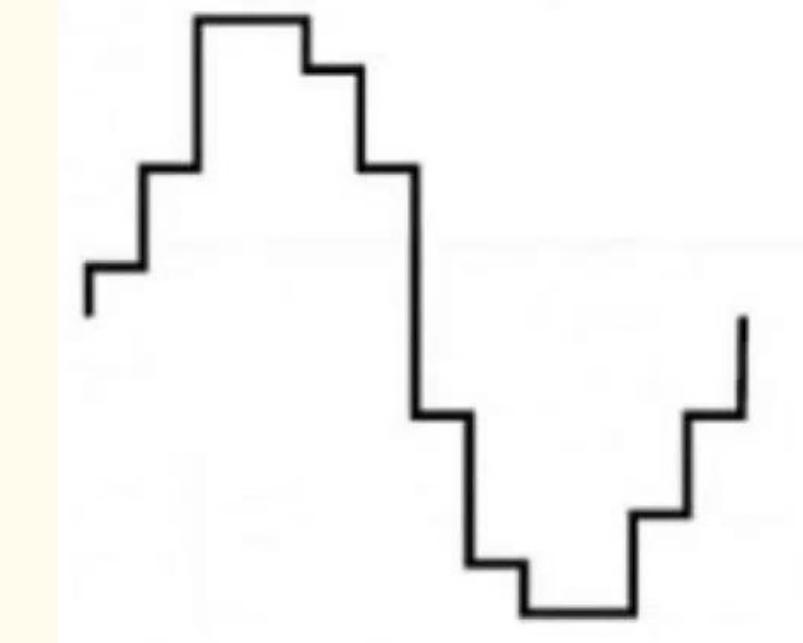
MIGRATE FROM TAPE TO FILE

METADATA

METADATA RETAINED EXACTLY

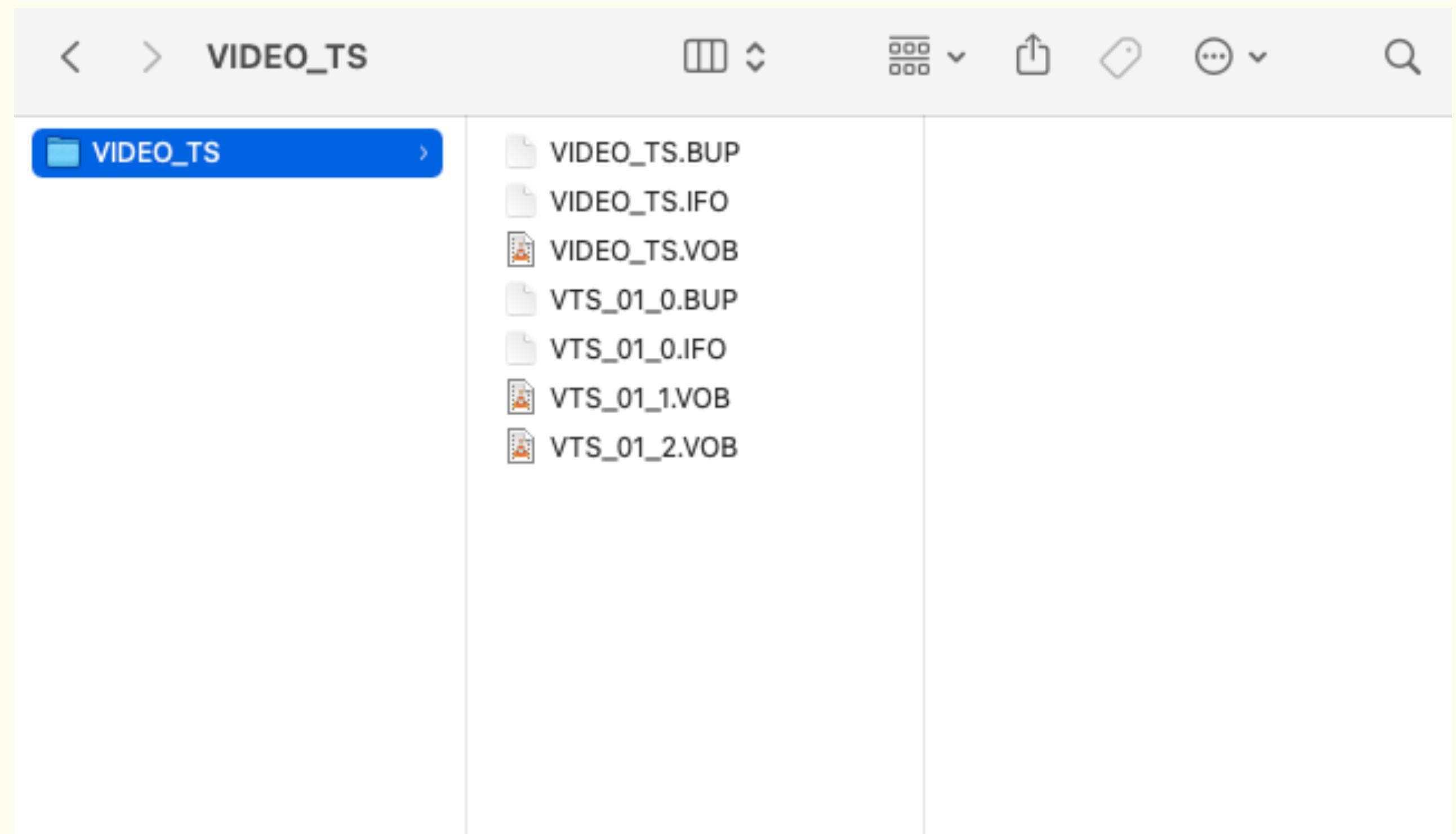
PRES FORMATS FOR OPTICAL DISCS

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	>	📄 00000.mpls
📁 BACKUP	>	📄 01900.mpls
📁 BDJO	>	
📁 CLIPINF	>	
🎥 index.bdmv		
📁 JAR	>	
📁 META	>	
🎥 MovieObject.bdmv		
📁 PLAYLIST	>	
📁 STREAM	>	

PRES FORMATS FOR OPTICAL DISC



MIGRATE
TO



ISO FORMAT FOR OPTICAL DISC

QUALITY

EXACT BIT-FOR-BIT COPY

STREAM

ALL STREAMS RETAINED EXACTLY

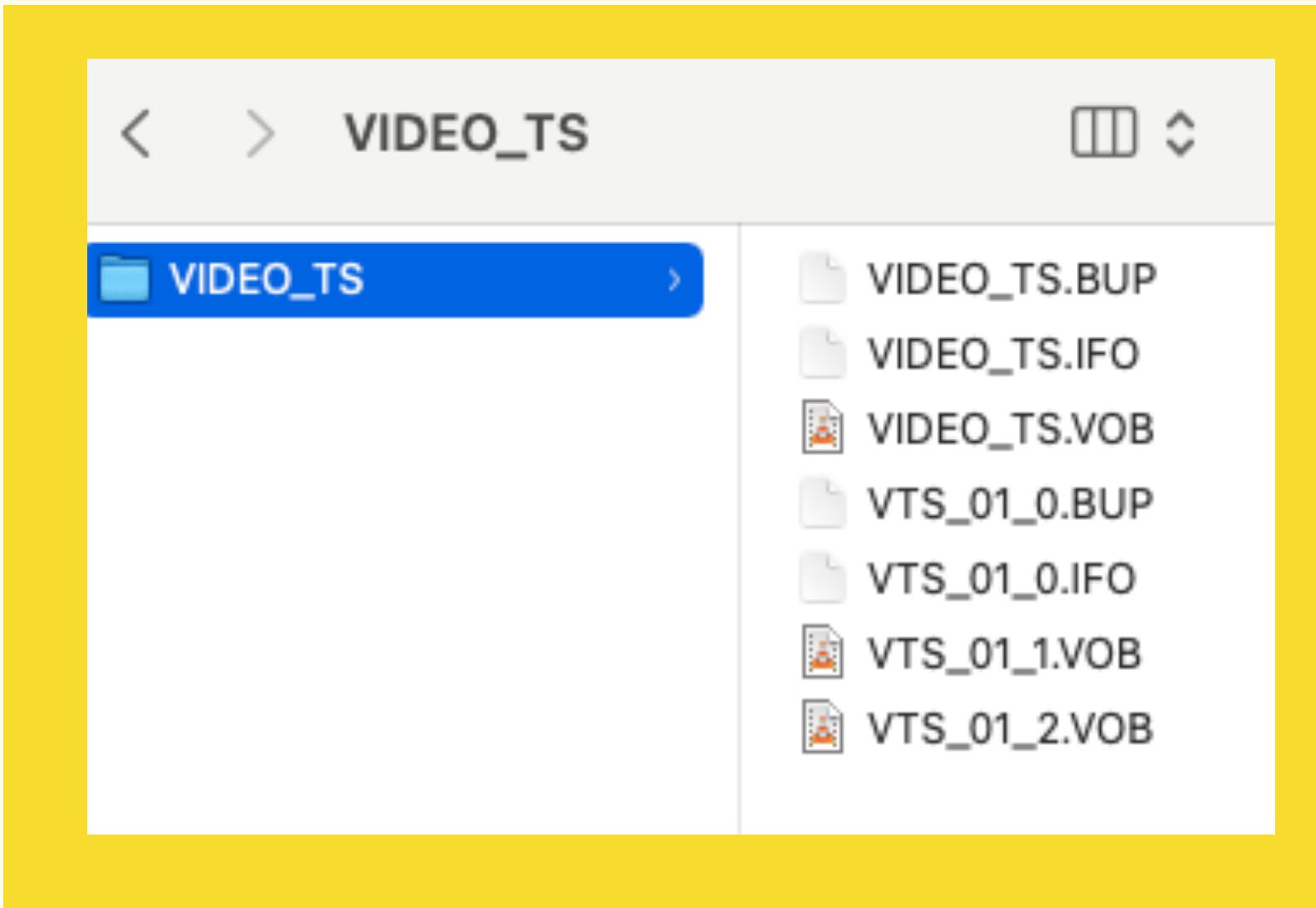
ORGANIZATION

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

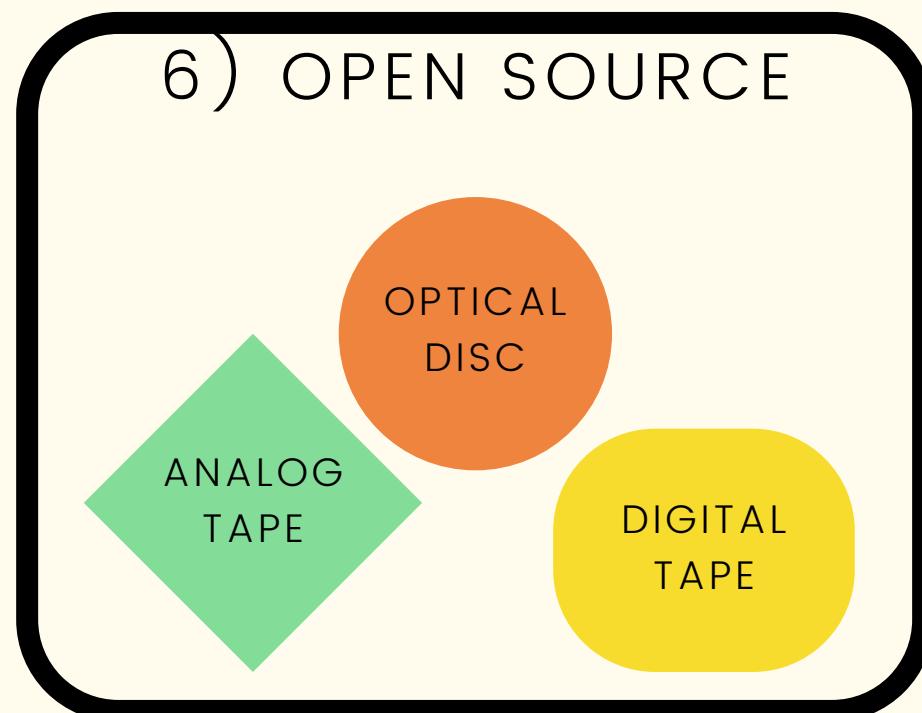
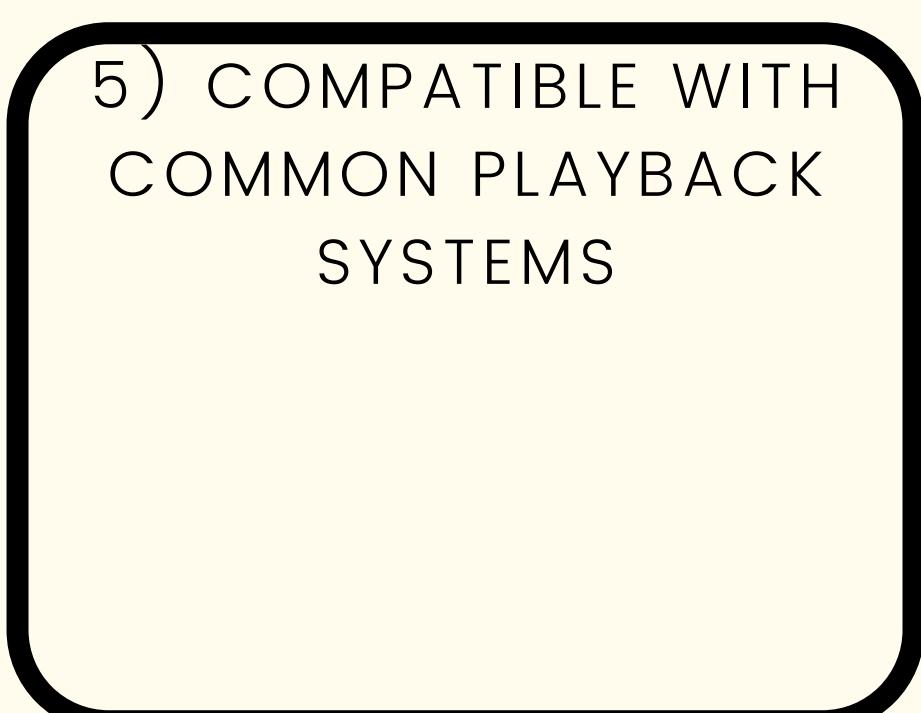
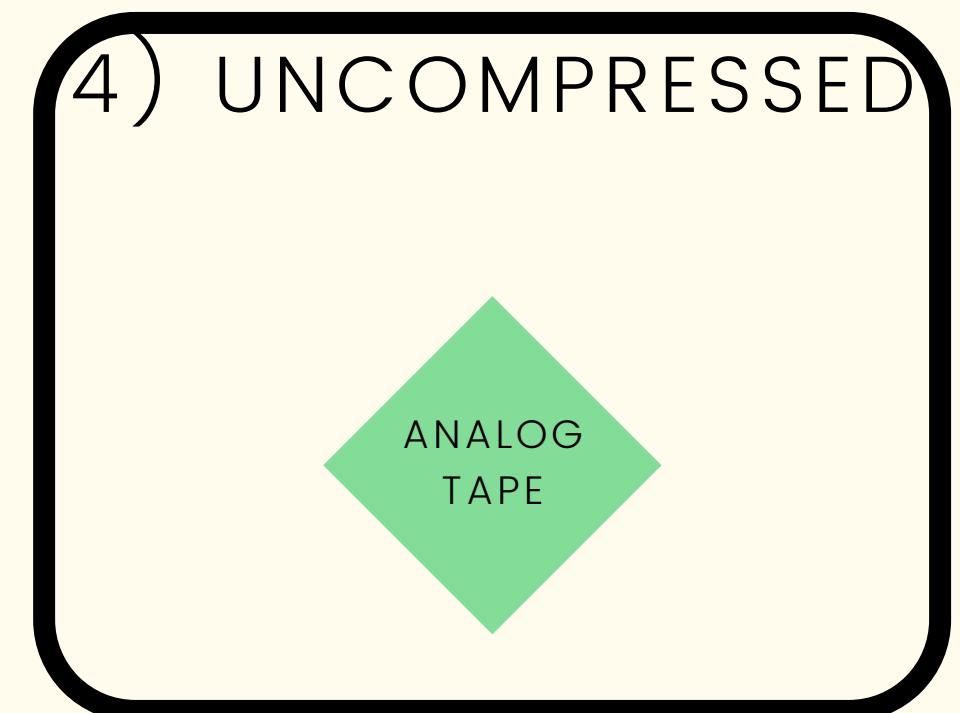
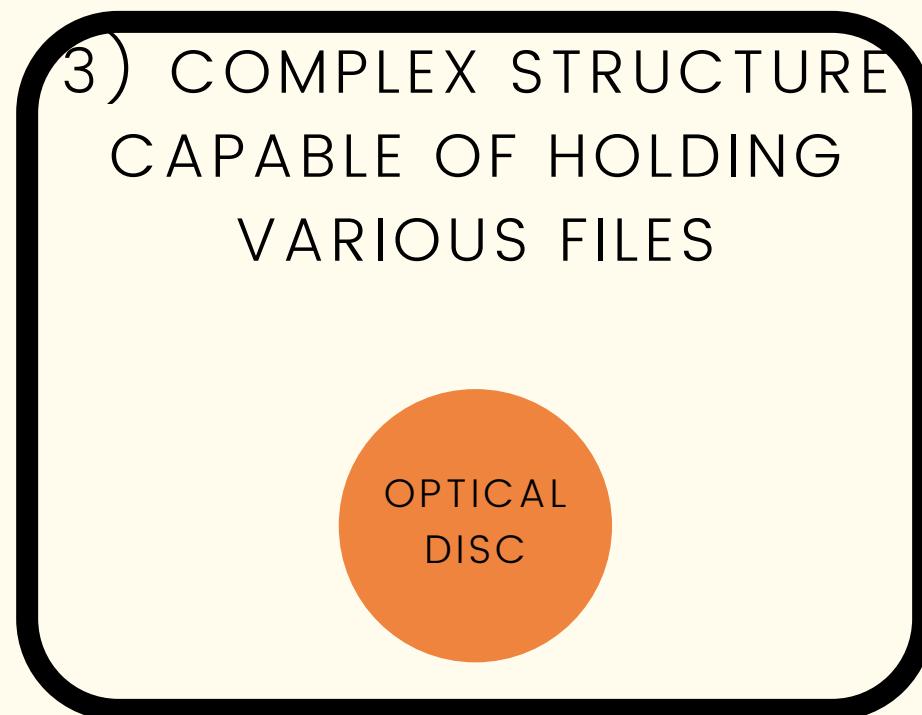
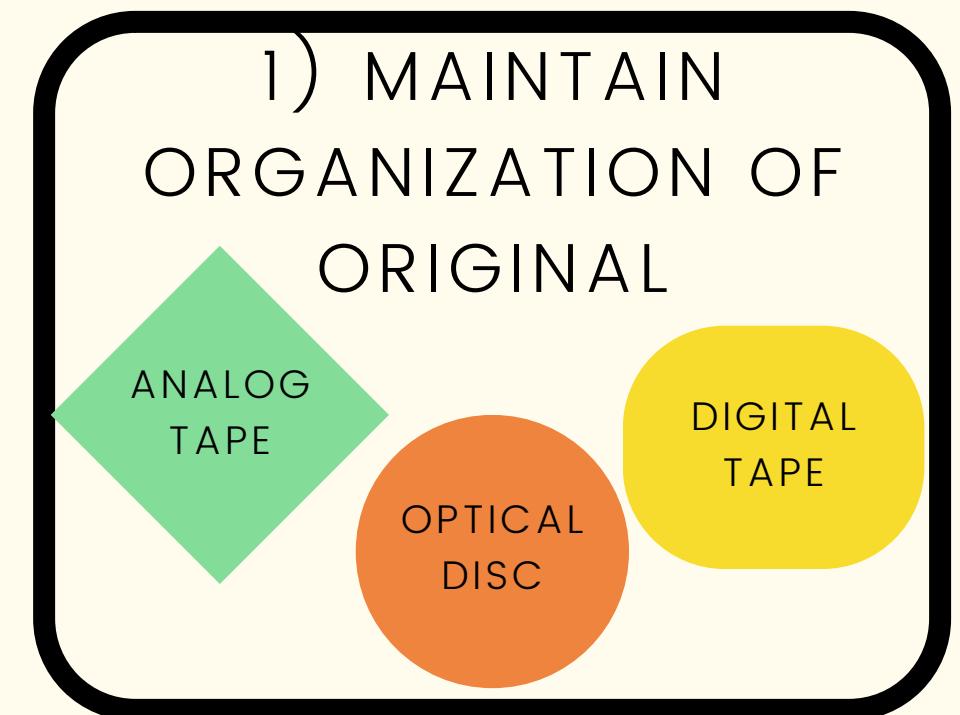
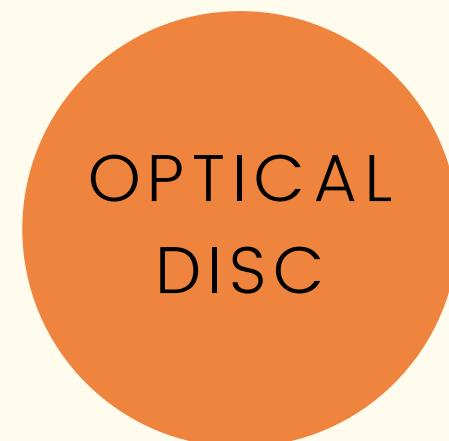
2) LOSSLESS
COMPRESSION

COMPATIBLE WITH
COMMON PLAYBACK
SYSTEMS

3) COMPLEX STRUCTURE
CAPABLE OF HOLDING
VARIOUS FILES

OPEN SOURCE

EXERCISE 2: PRES FORMATS





PRESERVATION SOFTWARE

PRESERVATION SOFTWARE

CREATING PRESERVATION FILES

Analog Tape

Digital Tape

Optical Disc

Access Files

vrecord



dvrescue



MakeMKV
or...

ddrescue



Handbrake



VRECORD

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





DVRESQUE



- Used to migrate DV tapes to files
- Open Source, developed by archivists
- Relatively simple interface, improving every day
- Requires a DV decks and some cables





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

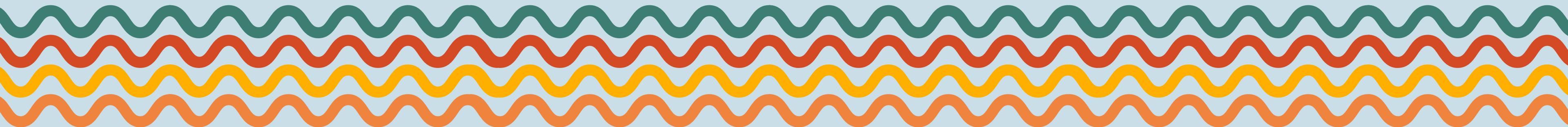




HANDBRAKE



- 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



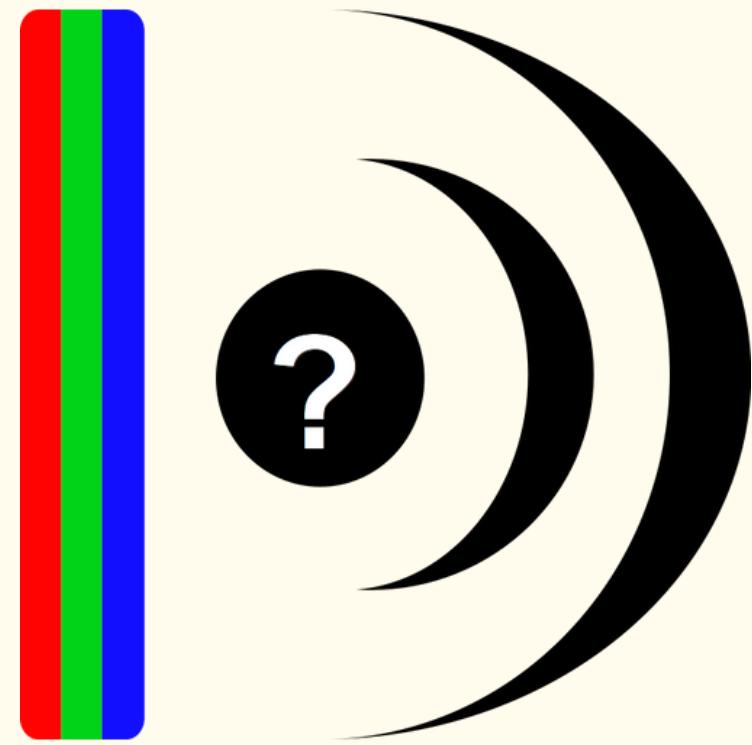
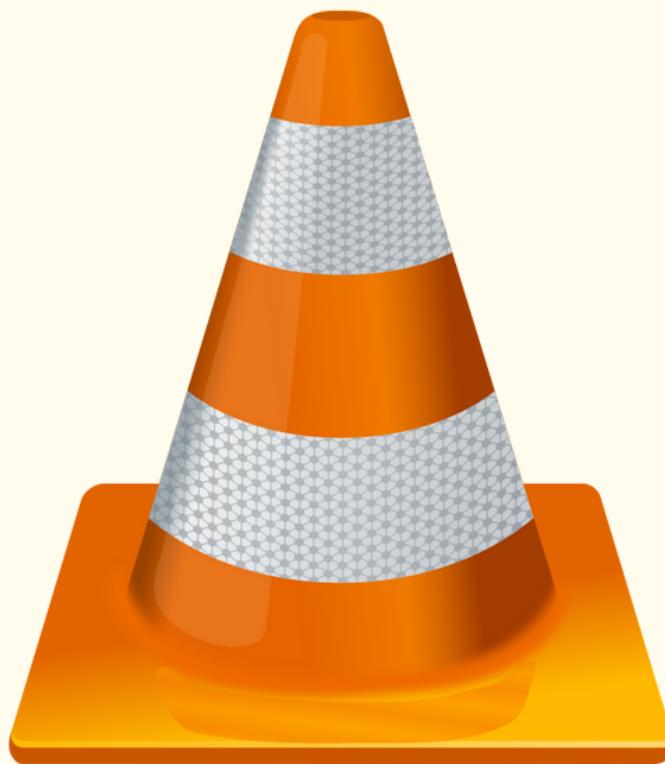
Handbrake

DAY TWO WILL ALL ABOUT USING THESE!



PRESERVATION SOFTWARE

ANALYZING FILES



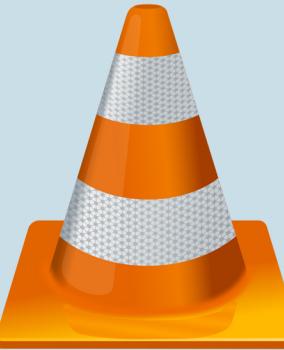
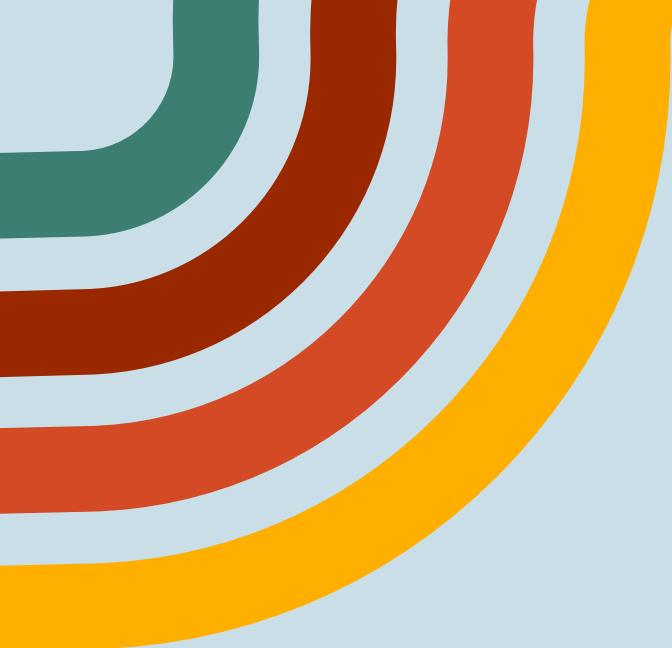
VLC

Mediainfo

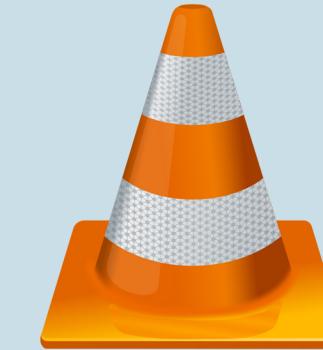
MediaConch

QCTools

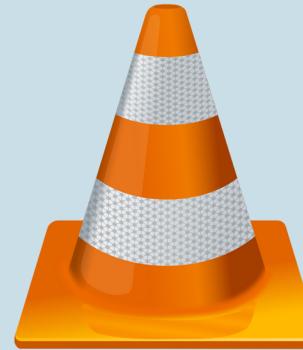
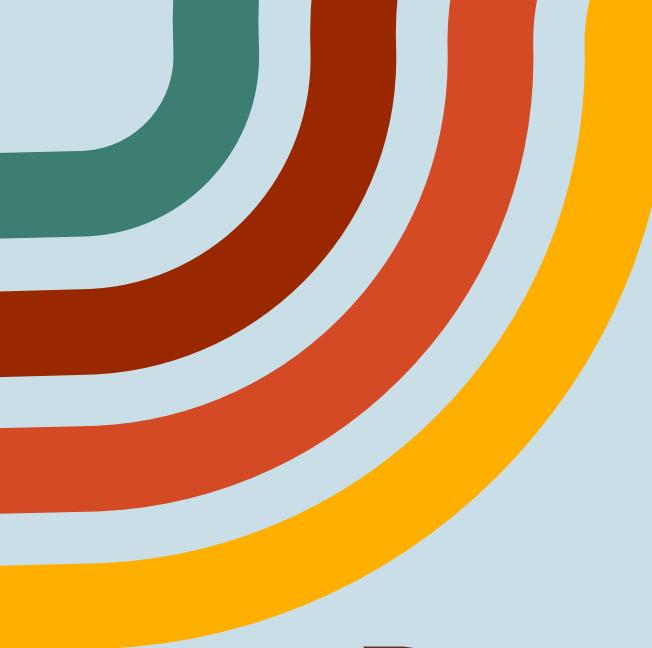




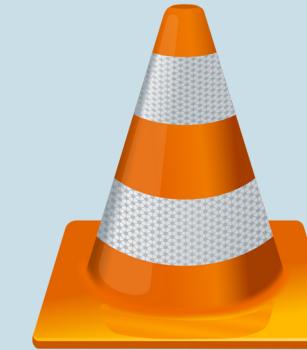
VLC



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, video, and caption streams

Cons

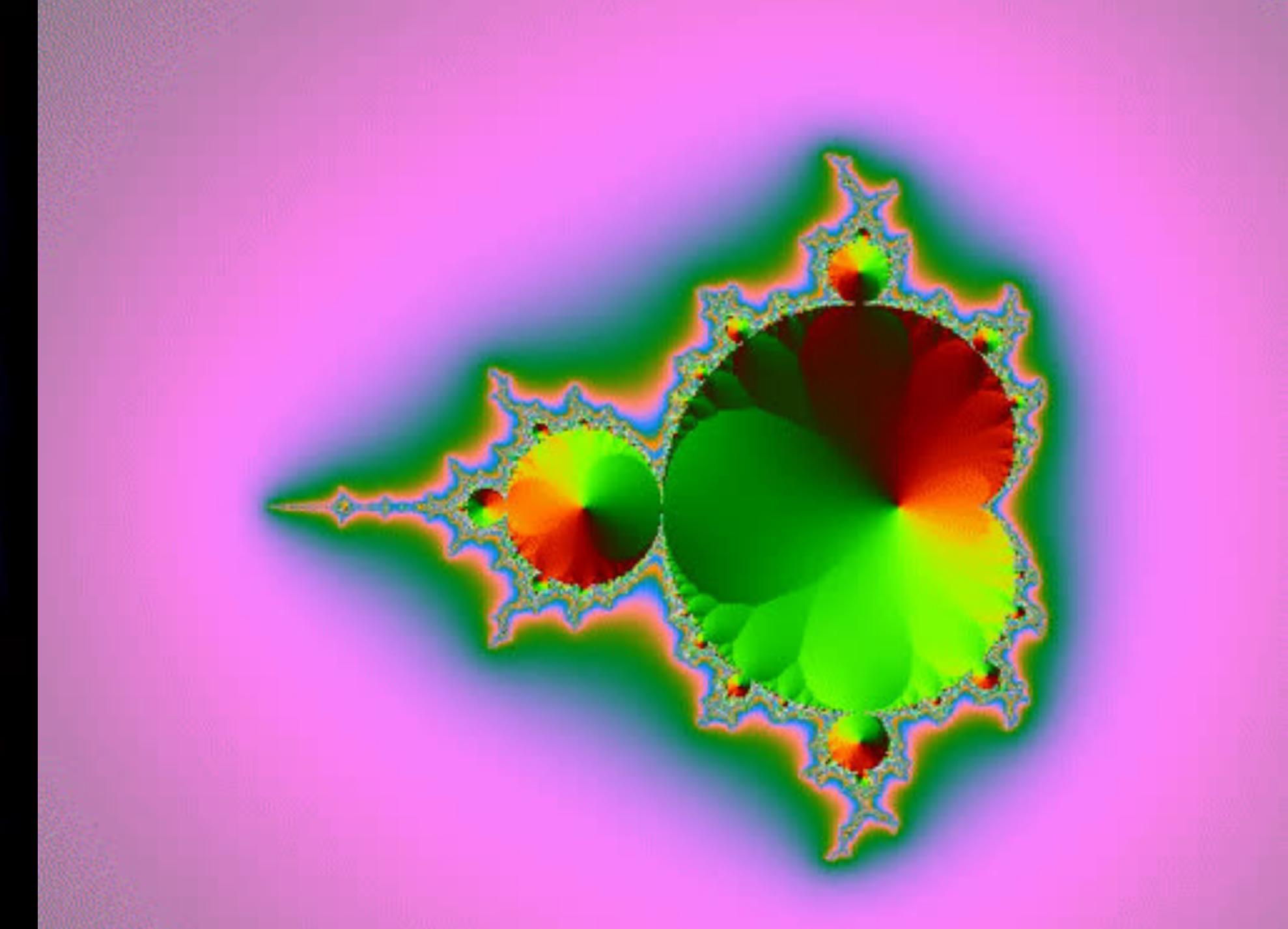
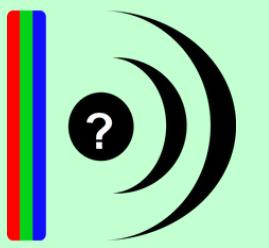
- Will play anything, even broken stuff
- Good for viewing, not good for testing to see if something is well-formed



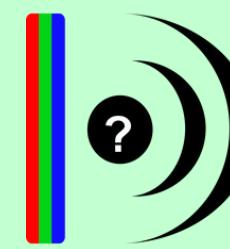
MedialInfo is a free, cross-platform and open-source program that displays technical information about media files



CONSIDER THESE TWO VIDEO FILES

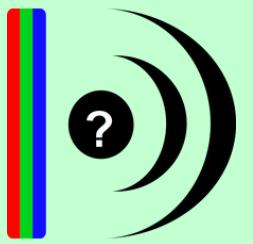


ARE HOW THESE FILES DIFFERENT?



	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

A screenshot of a web-based application interface. At the top, the text "BAVC Standard MP4" is displayed in blue. Below it, there is information about the policy: "Maintainer: Morgan Morel" and "License: Other". At the bottom of the card are two buttons: "Add to my policies" on the left and "Export" on the right.

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

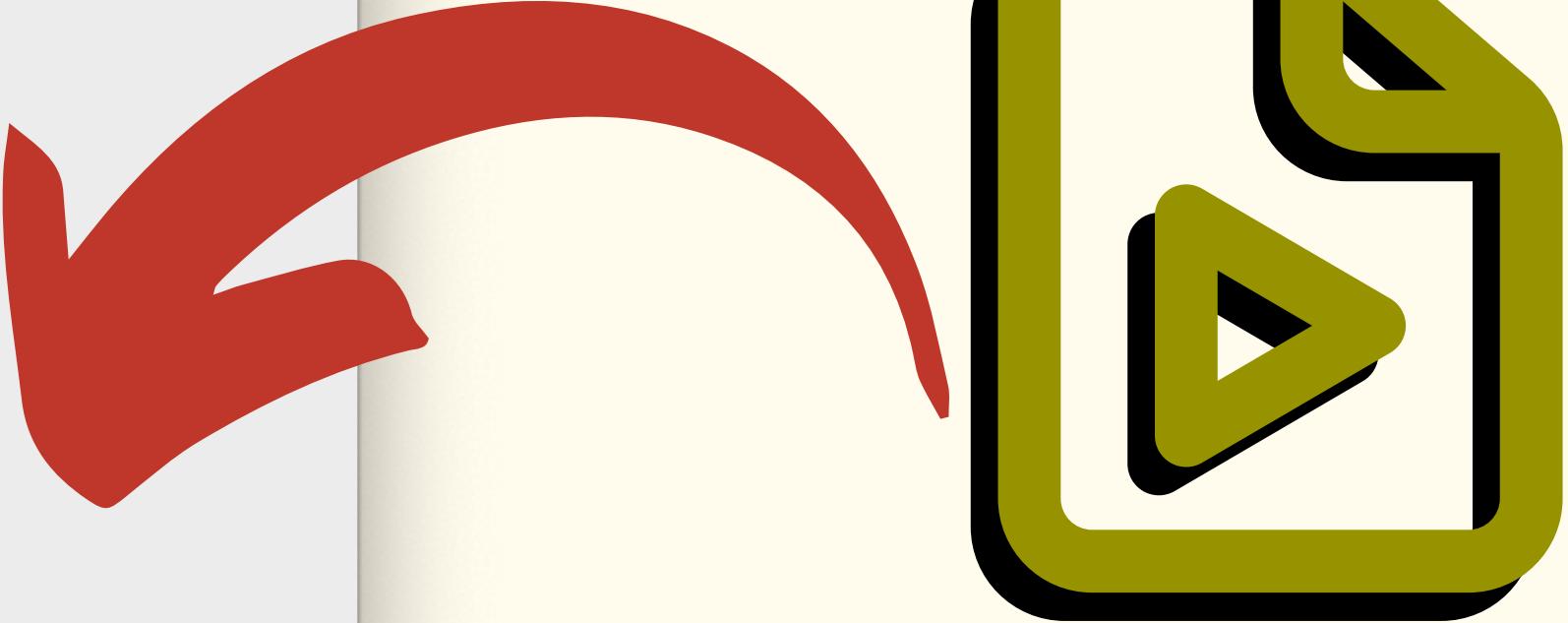
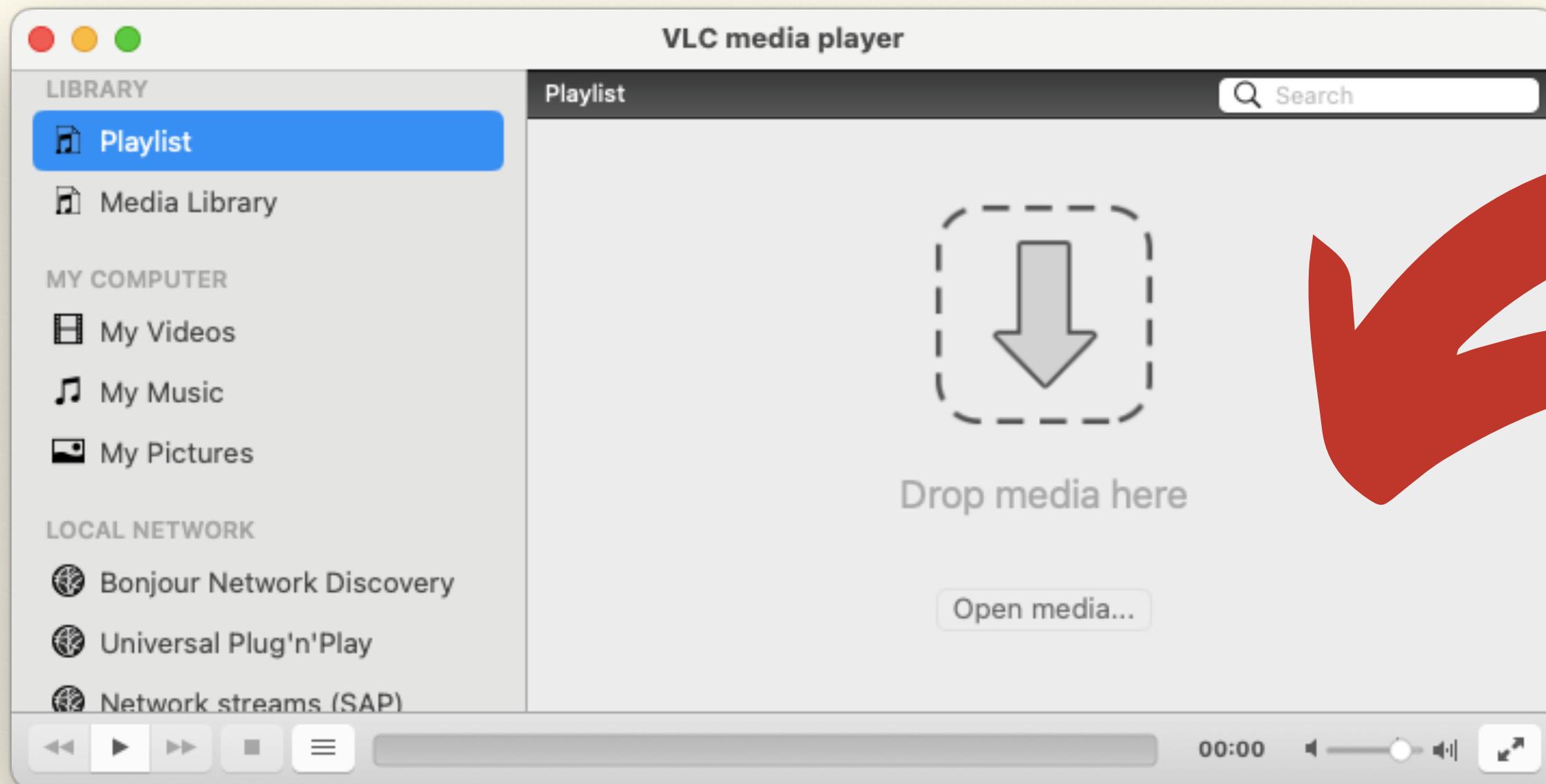
Examine the files in the Mystery Media folder you downloaded

- 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

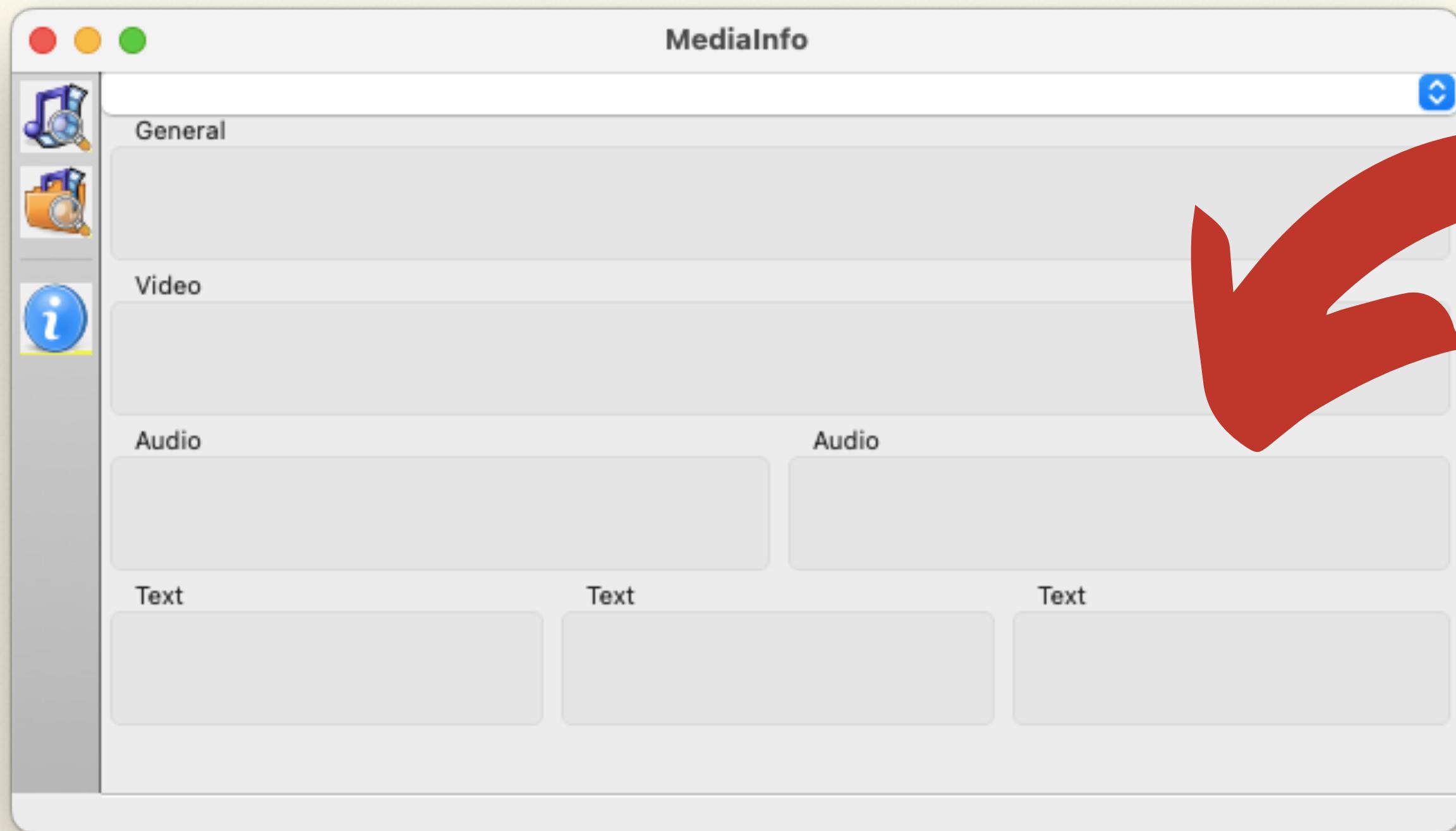
1) View each file using VLC



Drop the file
in to view

EXERCISE 3: EXAMINE FILES

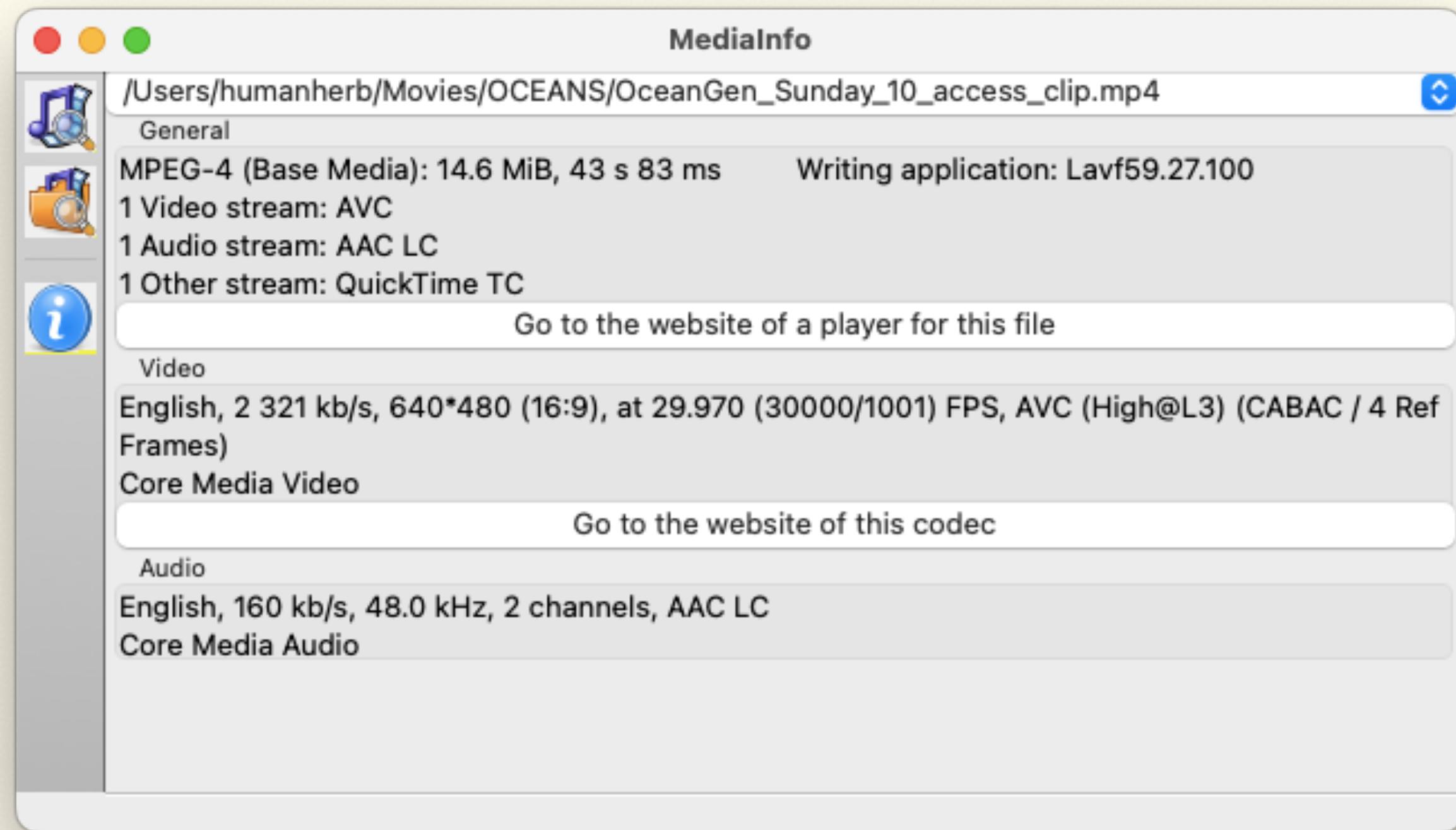
2) Examine each file in MediaInfo



Drop the file
in to examine

EXERCISE 3: EXAMINE FILES

2) Examine each file in MediaInfo



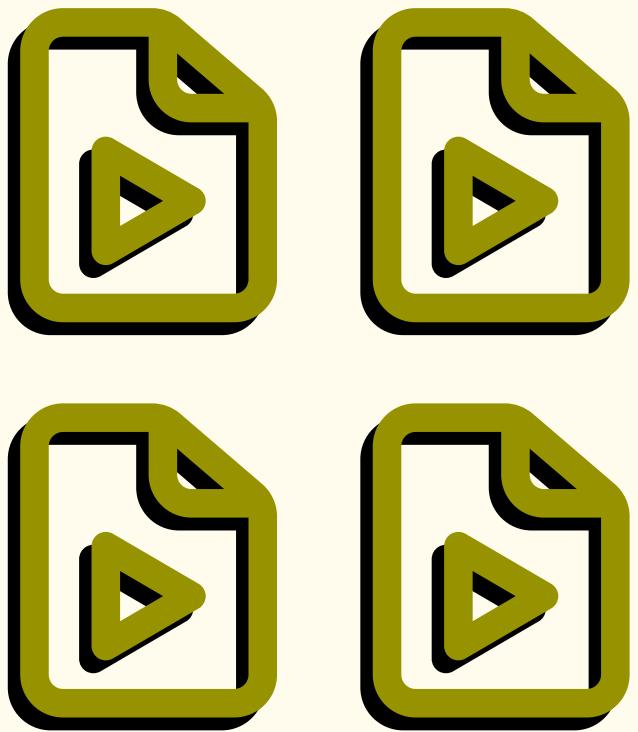
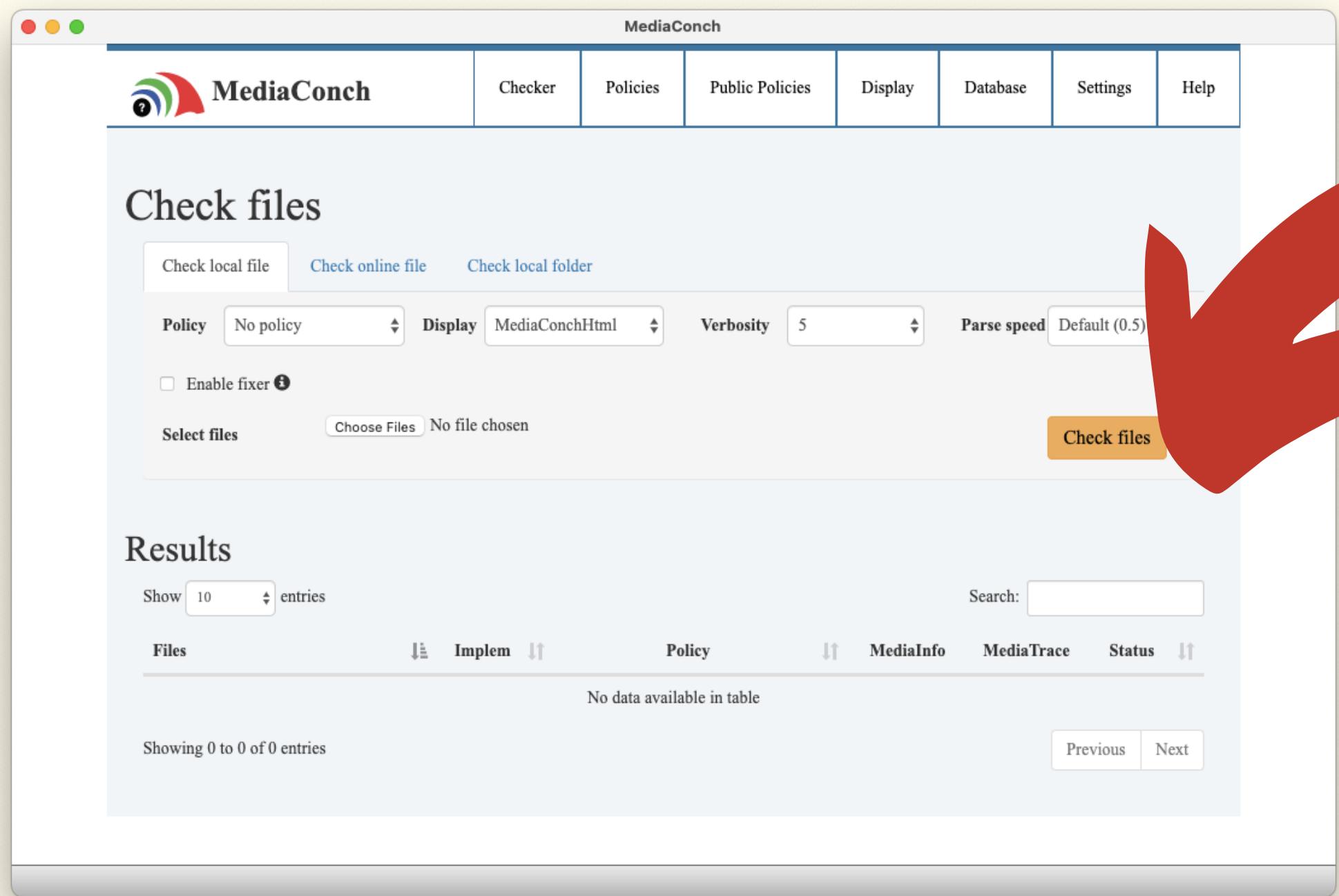
GENERAL FILE INFO

VIDEO STREAM INFO

AUDIO STREAM INFO

EXERCISE 3: EXAMINE FILES

3) Examine each file in MediaConch



Drop all four files in
to examine all at
once

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 lists several options: 'System policies', 'Is this NTSC or PAL SD?', 'Example MKV FFV1 digitization policy' (which is highlighted in blue), '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

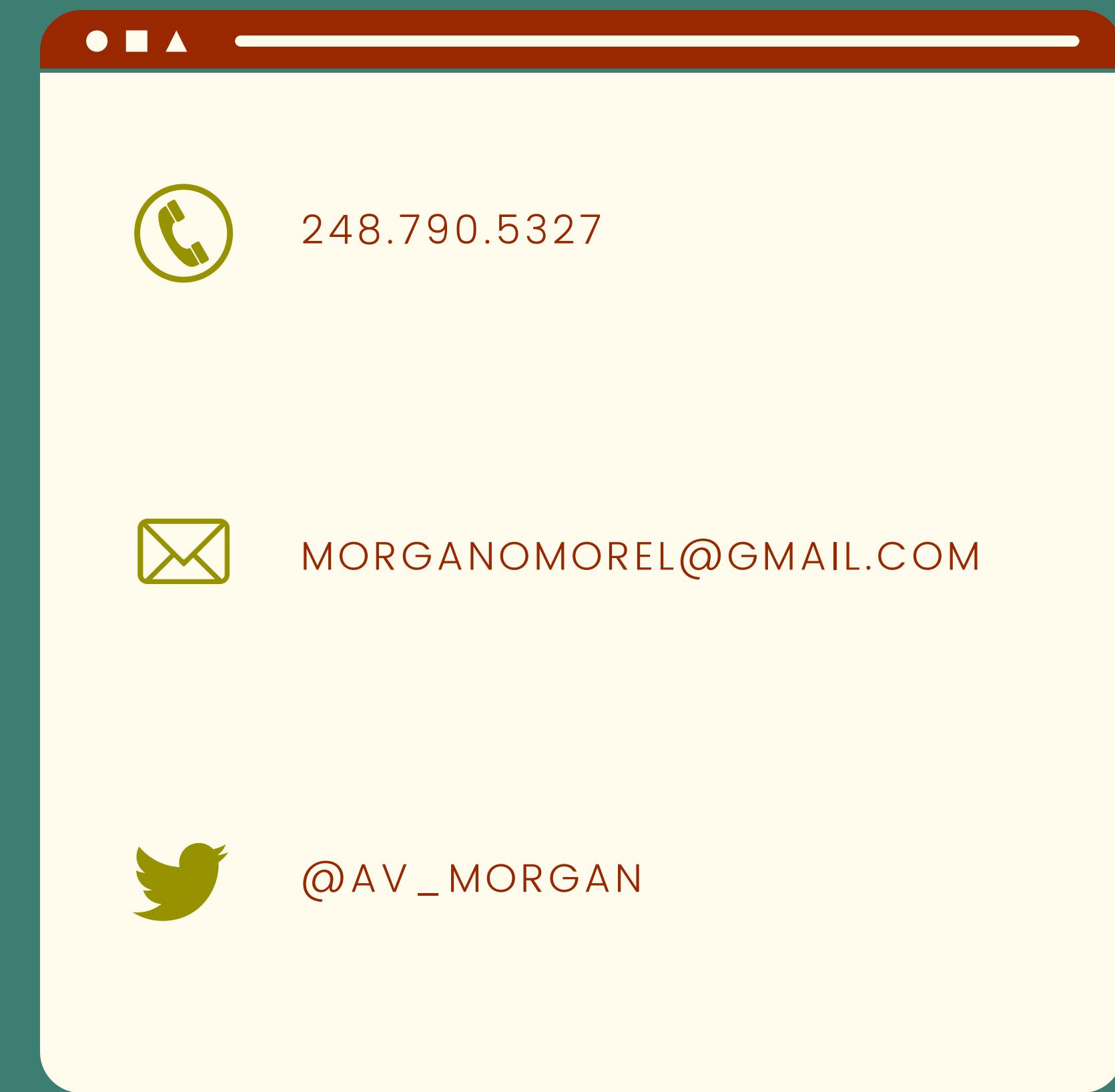
Common Artifacts

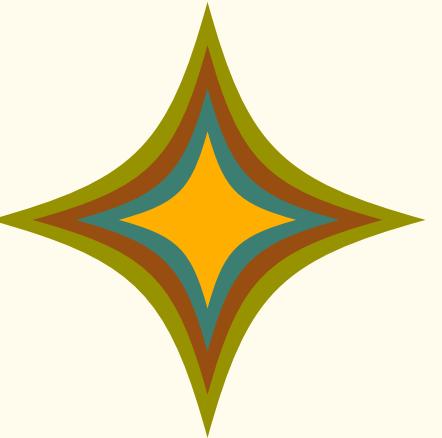
When loose oxide builds up in the tape path, it can travel with the tape to the drum assembly and prevent the video head from making contact with the tape. The result is a heavily obscured image or a complete loss of image. A video head clog requires thorough cleaning of the video heads if the clog obstructs 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)

QIA

CONTACT ME





THANK YOU!

