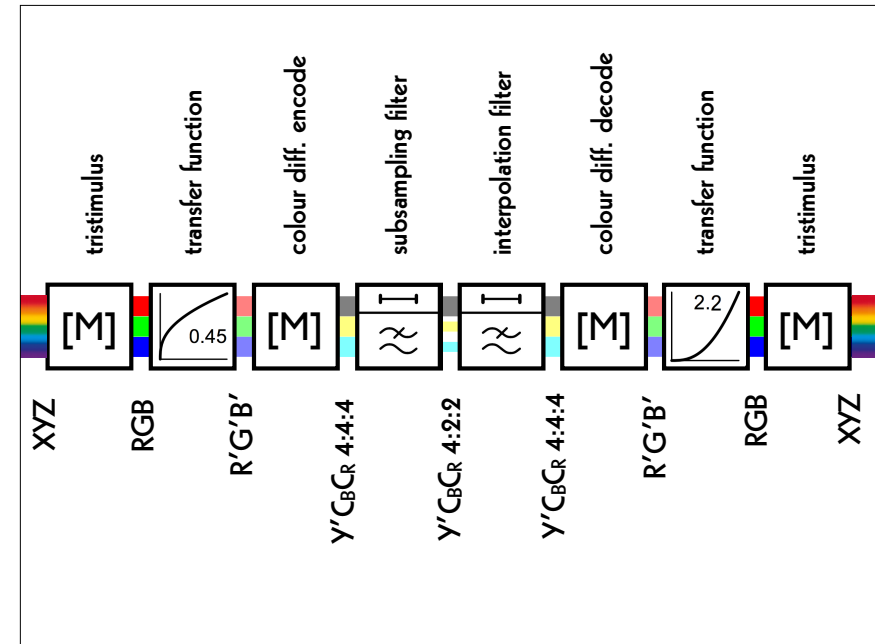# Playing with FFmpeg's CLI

«DigiPres102: Programming Basics and Preservation Tools»
AMIA Conference, Pittsburgh
2016–11–08

Reto Kromer • AV Preservation by reto.ch
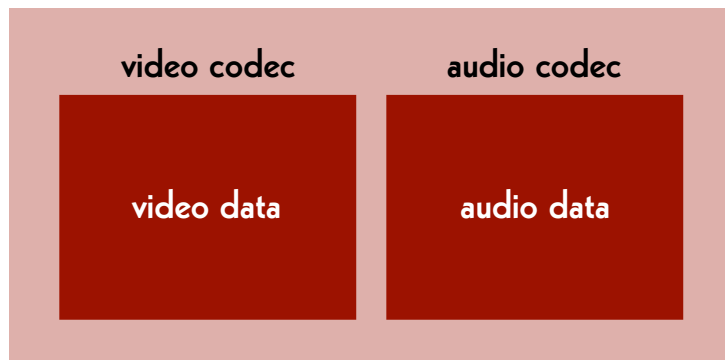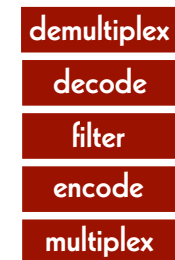
1

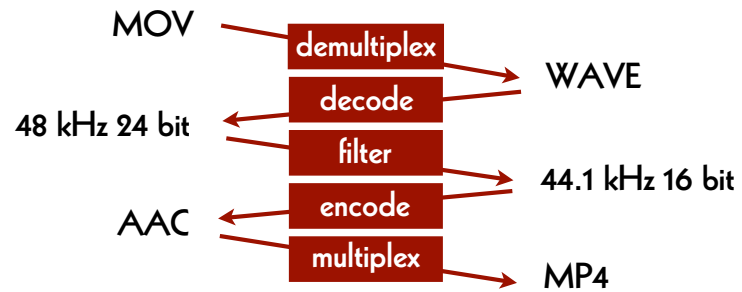
2

File Structure

audio-visual container

video codec	audio codec
video data	audio data

3

Data Transformations

demultiplex
decode
filter
encode
multiplex

4

Audio Exemple

MOV → demultiplex → WAVE
48 kHz 24 bit ← decode
filter → 44.1 kHz 16 bit
AAC ← encode
multiplex → MP4

Video Exemple

MOV → demultiplex → ProRes 422 HQ
yuv422p10le ← decode
filter → yuv420p
H.264 ← encode
multiplex → MP4

Audio-Visual Exemple

MOV → demultiplex → WAVE
ProRes 422 HQ
48 kHz 24 bit ← decode
yuv422p10le
filter → 44.1 kHz 16 bit
yuv420p
AAC ← encode
H.264
multiplex → MP4
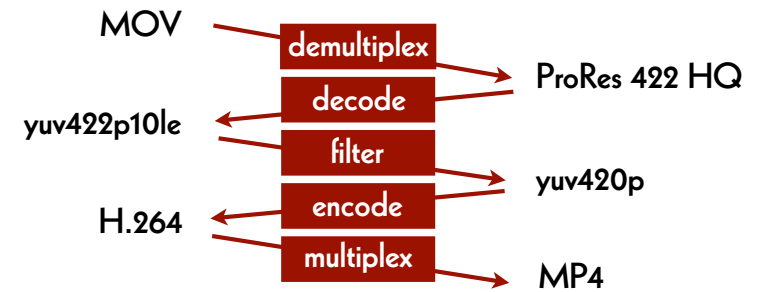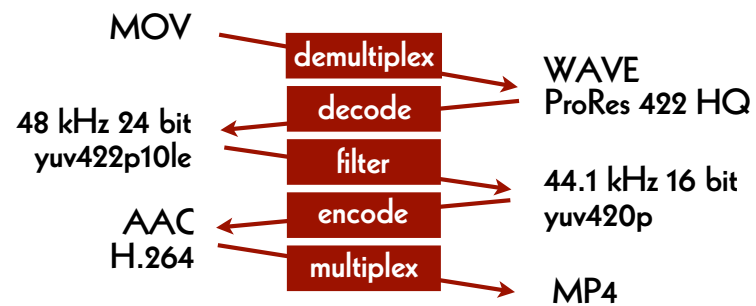
«Raw» Video Data

- rgb48le
- yuv444p16le
- rgb24
- yuv422p10le
- uyvy422
- yuv420p

Slide 9

```
ffmpeg
  [global_options]
  {[input_options] -i input_file}
  {[output_options] output_file}

ffplay
  [input_options] input_file

ffprobe
  [input_options] input_file
```

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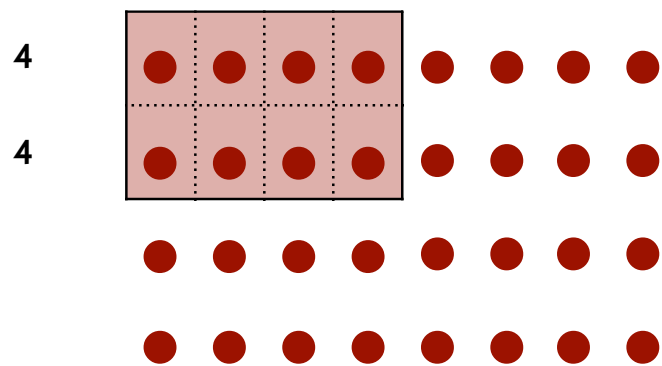# RGB24

```
00000000  11111111  00000000  00000000
00000000  00000000  11111111  00000000
00000000  00000000  00000000  11111111
```



```
00000000  11111111  11111111  11111111
11111111  00000000  11111111  11111111
11111111  11111111  00000000  11111111
```
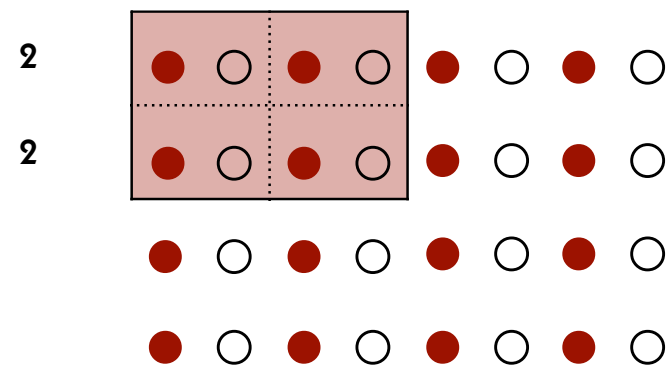
Slide 11

4:4:4
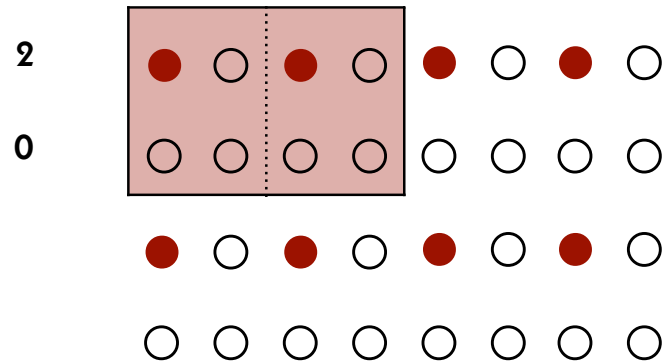
4

4

Slide 12

4:2:2

2

2

4:2:0

2

0

Different Purposes

archive master format:

➜ for preservation

mezzanine format:

➜ for professional use in postproduction

dissemination formats:

➜ for widely spreading and easy access

Resources

FFmpeg

➜ https://ffmpeg.org/

ffmprovisr

➜ https://amiaopensource.github.io/ffmprovisr/

FFmpeg Cookbook for Archivists

➜ https://avpres.net/FFmpeg/

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