The missing piece of software

Reto Kromer • AV Preservation by reto.ch

Champions of Value and Trust:
AV Archives in the all-media world
FIAT/IFTA, Dubrovnik, Croatia
22–25 October 2019

Reading

Reto Kromer: **Matroska and FFV1: One File Format for Film and Video Archiving?**, in «Journal of Film Preservation», n. 96 (April 2017), FIAF, Brussels, Belgium, p. 41–45

➔ https://retokromer.ch/publications/JFP_96.html

Compression

- chroma subsampling
- uncompressed
- lossless compression
- lossy compression
- born-compressed

Chroma Subsampling

- 4:4:4
- 4:2:2
- 4:2:0 / 4:1:1

Uncompressed

+ data simpler to process
+ software runs faster
− bigger files
− slower writing, transmission and reading

Examples: TIFF, DPX, OpenEXR

Lossless Compression

+ smaller files
+ faster writing, transmission and reading
− data processing complexer
− software runs slower

Examples: JPEG 2000, FFV1

Lossy Compression

- optimised for postproduction

Examples: ProRes 422, DNxHD, ProRes 4444, DNxHR

- optimised for access

Examples: H.264 (AVC), H.265 (HEVC), AV1

Born-Compressed

- optimised for both image acquisition and postproduction

Examples: CineForm RAW, ProRes RAW

container:

- folder
- TAR
- ZIP
- MXF
- Matroska

codec:

- TIFF
- DPX
- JPEG 2000
- FFV1
- OpenEXR
- CineForm RAW
- ProRes RAW

	avantages	disavantages
TIFF DPX OpenEXR	data easier to process	bigger files
JPEG 2000 FFV1	smaller files	data complexer to process

RAWcooked

- encoding into Matroska (.mkv) using FFV1 video codec and FLAC audio codec
- all metadata preserved
- decoding with bit-by-bit reversibility
- possibility to embed sidecar files (e.g. MD5, LUT, XML)
- compatibility with media players

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