PNG WG Meeting Minutes

Mar 31st, 2025

Attendees:

(Alphabetical order)
Chris Blume
Chris Needham
Cosmin Truta

Topics & Minutes:

- Compression methods other than deflate
    - GitHub issues #55 & #39
    - This isn't a "break" but it is an incompatible new version. We should be cautious.
    - github.com/catid/Zpng tests Zstd and finds <6% time to compress and 66% smaller files compared to typical PNGs. This also uses a new filter which is SUB but per-channel (YUV).
        - Perhaps we should consider new filters, too.
    - We might want to do this as a side experiment, gathering user interest before adding it to the standard.
        - We should look at JPEG LS & XL for their compression methods.
            - LS introduces "near-lossless", which would be very useful.
        - Asymmetric numeral systems (tabled-variant, specifically) might be useful.
- Negative cHRM values
    - Also not a "break", incompatible.
    - Current libpng would ignore the chunk, but the image would still render. It would just have incorrect color values.
    - We had the same when adding HDR support. Old image viewers still show the image, but with off colors. This was fine.
    - Everybody seems to support this.
- Inserting deflate restart markers into a stream where a new scanline with compatible filter allows – add new chunk to indicate the location of those restart markers
    - GitHub issues #60, #54, and #41
    - Possibly also NOT at scanline w/ compatible filter locations
        - Decoded data would need to be stored until the previous scanline is complete. This might increase memory usage. But it is optional so this might be fine for memory-constrained applications.
    - The zlib author wrote a parallel implementation called pigz. Investigate.
    - We might gain a lot of benefit by separating Huffman from deflate, rather than parallelize.

    - This could impact compression significantly because it flushes the compression window.
    - We want to wait for someone to provide a proof of concept before we consider it. We aren't rejecting the idea. But we don't want to add it to the spec before there is a reference implementation.

Topics we didn't get to:

- Gain maps & gain curves
- Generic image data
- rWTm (previously dWLm)
    - We believe the spec it references is not yet published. And when published, it will be behind a paywall.
- T.35 metadata
    - Coupled discussion with gain curves

Action Items:

- CB to implement data gathering for Chrome PNGs
    - cICP after PLTE
    - mDCv/cLLi
    - Duplicate eXIf chunks (one before IDAT, one after)
- CB to (eventually) write test website & common library patches for generic image-like data chunks.