JPEG XL — What is in those 32 bytes?

Signature

0xFF0A
JPEG marker:
"Start of JPEG XL codestream"

SizeHeader

not small
read height as u(13)+1
height = 1023 + 1 = 1024
width = height = 1024

ImageHeader

not all default   not XYB
no extra fields   sRGB
bitdepth: uint8   no extensions
modular_16_bit   default transforms
no extra channels

FrameHeader

not all default
kRegularFrame, kModular
default flags, not YCbCr, no upsampling
group_dim = 1024, one pass, not cropped
kReplace, last frame, no name
no restoration filters, no extensions

Table of Contents

read section size as u(10)
size = 20 bytes

LfGlobal

default LF dequant
decode global MA tree
no lz77
simple clustering
single cluster
use prefix code
hybriduint config: $0{\to}0$, $n{\to}2^{n-1} + u(n-1)$
symbol count is 10
[prefix code length code lengths]
prefix code:
$0{\to}0$, $2{\to}100$, $3{\to}101$, $4{\to}110$, $5{\to}1110$, $9{\to}1111$

Global MA Tree

if PrevAbsErr > 0

AvgAll −4   if y > 0

if |W| > 0   Set 0

N + 0   if N > 0

Set 0   Set 255

GlobalModular

no lz77
simple clustering
single cluster
use prefix code
hybriduint config 4-2-0
symbol count is 1
use global MA tree
default WP params
nb_transforms=1
transform: RCT of type 13 with begin_c=0
image data: all u(0) evaluating to zeroes