## **PNG Format:** 8 Bytes - PNG signature 137 80 78 71 13 10 26 10 1 number of bytes in the chunk's data field. Chunks (Always have the following structure) The length counts only the data field, not itself, the chunk type code, or the CRC Chunk Type<sup>2</sup> $CRC^3$ Length<sup>1</sup> Data <sup>2</sup> corresponds to chunk name "IHDR" in bytes bbbb bbbb bbbb <sup>3</sup> calculated on the preceding bytes in the chunk, including the chunk type and chunk 4 Bytes 4 Bytes x Bytes 4 Bytes data, but not including the length field Chunk Type **CRC** Length Data [0 0 0 13] bbbb 4 bytes: Width 4 bytes: Height 1 byte: Bit depth (8 usually used) in hex 1 byte: Color type (2 for RGB, 6 for RGBA) 1 byte: Compression method (always 0 referring to DEFLATE) 1 byte: Filter method 1 byte: Interlace method http://www.libpng.org/pub/png/spec/1.2/PNG-Chunks.htm 13 Bytes Optional chunks types **CRC** Length Chunk Type Data 73 68 65 84 b b b b ¦ ¦ ; b b b b ZLIB Compression (start of compression stream)<sup>1</sup> preferred to be CM**CINFO** max 32Kb length **CMF** 1 1 1 1 1 1 1 1 FCHECK FDICT FLEVEL - FLG Exist only if FLG.FDICT = 1DICTID b b b b ¦ DEFLATE<sup>4</sup> blocks - Compressed Data **BFINAL** (0 for all blocks, 1 for last block in the stream) see RFC 1950 see RFC 1951 (00 if no compression) **BTYPE** - based on LZ77 and Huffman coding - consists of many blocks with unlimited LEN length, however, if a block is uncompressed Exist only if [no compression] (no compression option is chosen, block NLEN = (2 byte int max - LEN) = (32767 - LEN)length should be limited to 32 Kb) b b calculated on all uncompressed data that went into the stream (combing all data Compressed data that1went to compression in all IDATs). It can be calculated progressively meaning cumulatively Data **CRC** Chunk Type Length - IDAT b b b b 73 68 65 84 ¦ b b b b preferred to be Compressed data | b ... max 32Kb length (0 for all blocks, 1 for last block in the stream) **BFINAL** (00 if no compression) **BTYPE** Block 2 · LEN Exist only if [no compression] NLEN = (2 byte int max - LEN) = (32767 - LEN)¦b b NLEN Compressed data ADLER32<sup>3</sup> (end of compression stream) Data = [R, G, B, A, ..., R, G, B, A]Analyse PNG HEX Chunk Type **CRC** Length Data b: byte (a number between 0 - 255 https://hexed.it/ 0 0 0 0 1 73 69 78 68 174 66 96 130 where $256 = 2^8$ ) 0 Bytes i: bit Legend Resources