**PNG Signature**

First eight bytes are always:

137 80 78 71 13 10 26 10

**Chunk Layout**

Each chunk has

* **Length** – 4-byte unsigned int giving the number of bytes in the data field, does not include itself, the chunk type code, or the CRC. i.e. zero is a valid length.
* **Chunk Type** – 4-byte chunk type code. (code is restricted to A-Z and a-z)
* **Chunk Data** – the actual data bytes, can be of zero length.
* **CRC** – 4-byte Cyclic Redundancy Check. Always present even for empty chunks.

Chunks can appear in any order. (Apart from IHDR chunk must appear first, and IEND chunk must appear last.)

**Chunk Naming Conventions**

* Bit 5 of each byte convey chunk properties.
* **Ancillary Bit (bit 5, first byte)**
  + 0 = critical, 1 = ancillary
  + “ancillary” chunks can be ignored if the chunk code is unknown.
  + “critical” chunks are necessary successful displaying of the image.
  + If “critical” on an unknown chunk, we can not safely interpret the data.
* **Private Bit (bit 5, second byte)**
  + 0 = public, 1 = private
  + “public” chunks are part of the PNG specification, or in the list of special-purpose chunk types.
  + “private” chunks can be defined for custom purposes.
  + We do not need to test private-chunk property bits, as they have no functional significance.
* **Reserved Bit (bit 5, third byte)**
  + 0 = made using PNG specification 1.2
  + 1 = reserved for future specification, should be treated as an unknown chunk type.
* **Safe-To-Copy Bit (bit 5, fourth byte)**
  + 0 = unsafe to copy, 1 = safe to copy
  + Really only needed for apps that modify PNG files.

Example:

bLOb 🡨 32-bit chunk type code represented in text form.

|||+- safe-to-copy bit is 1.

||+-- reserved bit is 0.

|+--- private bit is 0.

+---- ancillary bit is 1.

Using this info, this name represents an ancillary, public, safe-to-copy chunk.