

CS 240 #15: Act 1 - Remaining Bits

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PNG File Format

When we discussed the PNG file format, there's a few bits of brilliance in the format that is definitely worth covering:

1) PNG Header:

0x 89 50 4e 47 0d 0a 1a 0a

0x89:

0x50 4e 47:

2) Endianness:

Section 2.1: All integers that require more than one byte must be in network byte order: the most significant byte comes first, then the less significant bytes in descending order of significance (MSB LSB for two-byte integers, B3 B2 B1 B0 for four-byte integers)
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“Big Endian”:

“Little Endian”:

15-bits/endianness.py

1	int i = 42;
2	unsigned char *s = (unsigned char *)&i;
3	printf(“%d %d %d %d”, s[0], s[1], s[2], s[3]);

What do we expect for the output for various endian systems?

Processing vs. Thread: Process Isolation

Originally, programs would run as a single process. Consider a single web browser window:

Today, every tab runs as its own process:

...and this doesn't just apply to web browsers:

...what if we need even more isolation?

The Second Act: Computer Systems in the Cloud!