TCP/IP Basics: IP

TCP and IP are separate protocols.
2 versions of IP: version 4 (IP) and 6 (IPv6/IP6).
Main difference is address length: 32 or 128 bits.
IP datagrams are individual messages with no mechanism to augment end-to-end data reliability, flow control or sequencing (TCP does those). RFC 791 (Sep 1981) is still the current spec for IP and RFC 8200 (Jul 2017) documents IPv6.

TCP/IP Basics: TCP

TCP batches data into <u>segments</u>. Each segment is sent as an IP datagram. Documented in RFC 9293 (Aug 2022). 6 protocol-specific fields: Source Port, Destination Port, Sequence Number, Acknowledgement Number, Flags and Window. Also has a Checksum of the entire segment. There is an Urgent Pointer but its use is discouraged. The RFC explains how these fields are used.

TCP/IP Basics: Live Demo

Use **nc** (netcat) to generate a simple TCP/IP session and watch it with **tcdump**.