

What Happens When You Hit Enter

Quick reference cheat sheet · Episode 001 · Net+ / Sec+ / CCNA



1. URL	Browser parses the address into scheme + host + path; HSTS forces HTTPS.	URL, scheme, host, path, HSTS
2. DNS	Name to IP. Checks browser cache, OS cache, then a recursive resolver that walks root -> TLD -> authoritative.	DNS, IP, recursive resolver, root/TLD/authoritative, TTL
3. ARP	To leave the LAN, find the router's MAC. ARP broadcasts 'who has this IP?'; gateway replies. Result is cached, so it is a one-time step per gateway, not per request. IP stays, MAC changes each hop.	ARP, ARP cache, MAC, default gateway, hop
4. TCP	Three-way handshake opens a reliable, ordered connection on port 443.	TCP, SYN, SYN-ACK, ACK, port
5. TLS	Encrypts the connection. Diffie-Hellman derives a shared key never sent on the wire; certificate proves identity; forward secrecy.	TLS, Diffie-Hellman, certificate, CA, forward secrecy
6. HTTP	Request = method + path + headers (GET /). Response = status code + headers + HTML body. 200 = OK.	HTTP, GET, header, status code, body
7. HTTP/3 + QUIC	QUIC over UDP merges the TCP and TLS handshakes into one round trip; 0-RTT skips it for return visits.	HTTP/3, QUIC, UDP, 0-RTT, round trip
8. Render	HTML->DOM, CSS->CSSOM, combine into render tree (visible only), layout, paint, composite on GPU. Renders progressively.	DOM, CSSOM, render tree, layout, paint, composite

Acronym key

HSTS always-HTTPS list

ARP IP to MAC on LAN

TLS encrypts the connection

QUIC fast transport on UDP

DNS name to IP system

MAC hardware address

CA signs certificates

0-RTT handshake-free resume

TTL cache expiry timer

TCP reliable, ordered transport

HTTP web request language

DOM tree of page elements