Cheatography

# TCP vs UDP Cheat Sheet

by bytebar via cheatography.com/218949/cs/48437/

## Side by Side

| | |
|---|---|
| **Full name** | Transmission Control Protocol (TCP) · User Datagram Protocol (UDP) |
| **Connection** | TCP: Connection-oriented (handshake first) · UDP: Connectionless (fire and forget) |
| **Reliability** | TCP: Guaranteed delivery, ordered, error-checked · UDP: Best effort — no guarantees |
| **Speed** | TCP: Slower (overhead) · UDP: Faster (minimal overhead) |
| **Header size** | TCP: 20 bytes · UDP: 8 bytes |
| **Use when** | TCP: Accuracy matters · UDP: Speed matters |

The head-to-head every Network+, Security+, and CCNA exam asks about.

## The Three-Way Handshake

| | |
|---|---|
| **Step 1: SYN** | Client → Server |
| **Step 2: SYN/ACK** | Server → Client |
| **Step 3: ACK** | Client → Server |
| **Teardown** | FIN → FIN-ACK → ACK |

SYN flood attacks abuse this by leaving connections half-open.

## Use TCP When…

| | |
|---|---|
| **Web browsing** | HTTP/HTTPS |
| **Email** | SMTP, IMAP, POP3 |
| **File transfer** | FTP, SFTP |
| **Remote admin** | SSH, RDP |

Use TCP when accuracy matters.

## Use UDP When…

| | |
|---|---|
| **DNS lookups** | Port 53 |
| **DHCP** | Ports 67/68 |
| **Streaming / VoIP / gaming** | Speed matters more than perfection |
| **NTP / SNMP / TFTP** | Ports 123 / 161 / 69 |

Use UDP when speed matters.

## Exam Traps

| | |
|---|---|
| **"Which is connectionless?"** | UDP |
| **SYN flood attack** | Abuses the TCP handshake (half-open connections) |
| **Sequencing + ACKs** | TCP uses them; UDP has neither |
| **DNS transport** | UDP for queries, TCP for zone transfers |

Read the question twice — these are designed to trick you.

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Published 14th September, 2026.
Last updated 14th September, 2026.