Decode TCP and UDP Cheat Sheet

by SinaVafadar via cheatography.com/128837/cs/25317/

Transport Layer

Number of Layer	4th Layer of OSI Model
Role	Transport Data
Protocols	UDP - TCP
PDU (Protocol Data Unit)	Segment
Address	Port Number

UDP Features

Type of Connection	Connectionless (Does Not Need Connection Setup)
Application	Time-Sensitive Connections
Number of Fields in Header	Four Field Header

TCP Features

Type of Connection	Connection-Oriented (Needs Connection Setup)
Application	Reliable Connections
Number of Fields in Header	Eleven Field Header

Commands

Active UDP Connections	`netstat -anp udp`
Active TCP Connections	`netstat -anp tcp`

UDP Header Fields

Source Port 16-bit	Port on The Receiver's Side
Destination Port 16-bit	Port on The Sender's Side
Length 16-bit	The Number of Bytes in The UDP Header And Any Data Follows
Checksum 16-bit	Calculated Value for Ensuring Data Integrity

TCP Ports

Source Port 16-bit	The Port on The Sender Side
Destination Port 16-bit	The Port on The Receiver Side
Stream	A Communication Between Two Endpoints
TCP Segment Length	The Value of The TCP Payload (The Data That Follows The TCP Header)

Sequencing and Acknowledging in TCP

Sequence Number 32-bit	The Byte Number of The First Byte of Data
Next Sequence Number	Current Sequence Number Plus The TCP Segment Length
Acknowledgment Number 32-bit	The Sequence Number of The Next Byte The Receiver Expects to Receive
Offset	Indicates The Length of The TCP Header

Flags in TCP

Reserved	3-bit	For Future Use
Nonce	1-bit	Experimental Use
CWR	1-bit	Respond to Indications of Network Congestion with Congestion Avoidance
ECE	1-bit	Notify The Endpoints of Any Network Congestion to Avoid Dropping Packets
URG	1-bit	Indicates a Packet That Should Have Priority
ACK	1-bit	Acknowledging The Data Was Received
PSH	1-bit	Informing Data Should Be Sent Immediately
RST	1-bit	Aborting The TCP Connection
SYN	1-bit	Synchronizing The Sequence Numbers
FIN	1-bit	closing The Connection

By **SinaVafadar**

cheatography.com/sinavafadar/

Published 20th November, 2020.
Last updated 20th November, 2020.

Sponsored by **Readable.com**
Measure your website readability!
https://readable.com

Dissecting Window Size	
Window Size 16-bit	Controls The Flow of Data
Scaling Factor	A Value For Expanding Window Size
Window Size Scaling Factor	2 ^ (Scaling Factor) if Scaling Factor >= 0
Calculated Window Size	Window Size * Window Size Scaling Factor

Additional Header Values in TCP	
Checksum	A Calculated Value For Error Detection
Urgent Pointer	Points to The Sequence Number of Urgent Data
Options	Extra Options Like Timestamps And No-operation

By **SinaVafadar**

cheatography.com/sinavafadar/

Published 20th November, 2020.
Last updated 20th November, 2020.

Sponsored by **Readable.com**
Measure your website readability!
https://readable.com