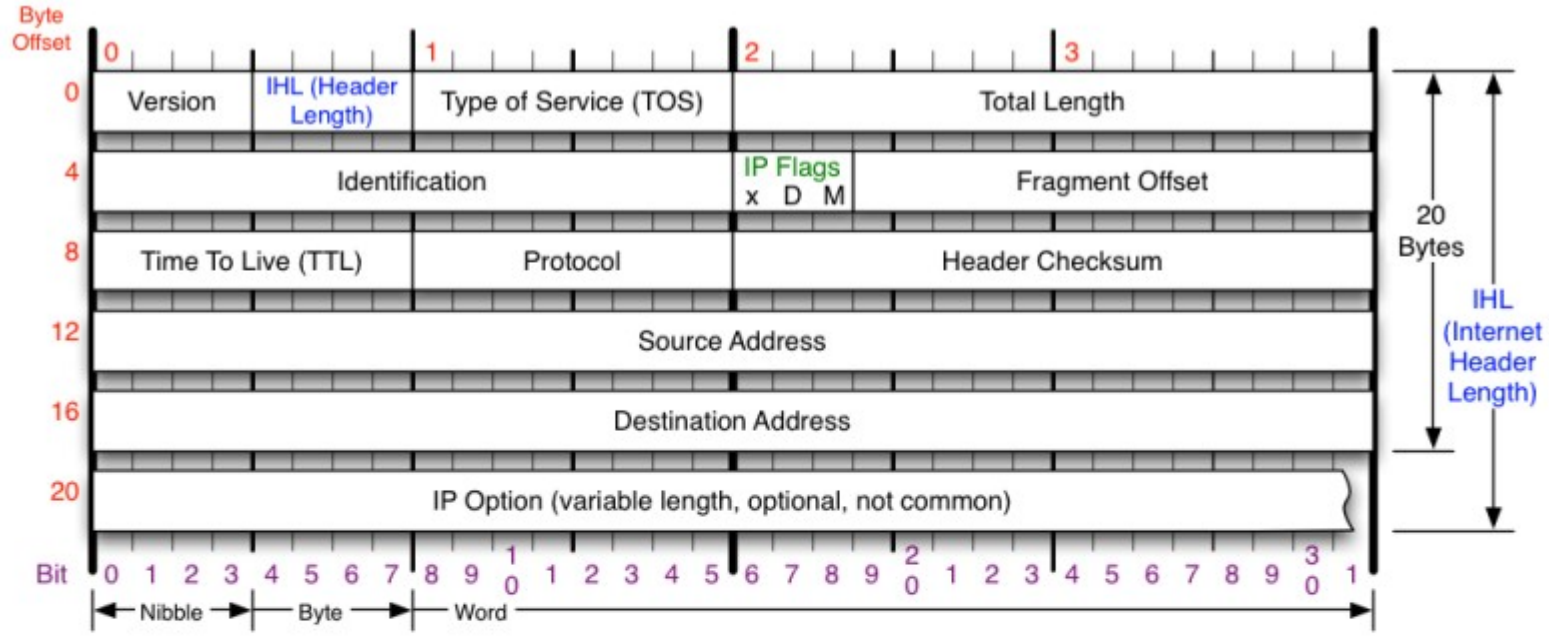
IP HEADERS



Version

Version of IP Protocol. 4 and 6 are valid. This diagram represents version 4 structure only.

Header Length

Number of 32-bit words in TCP header, minimum value of 5. Multiply by 4 to get byte count.

Protocol

IP Protocol ID. Including (but not limited to):

1 ICMP	17 UDP	57 SKIP
2 IGMP	47 GRE	88 EIGRP
6 TCP	50 ESP	89 OSPF
9 IGRP	51 AH	115 L2TP

Total Length

Total length of IP datagram, or IP fragment if fragmented. Measured in Bytes.

Fragment Offset

Fragment offset from start of IP datagram. Measured in 8 byte (2 words, 64 bits) increments. If IP datagram is fragmented, fragment size (Total Length) must be a multiple of 8 bytes.

Header Checksum

Checksum of entire IP header

IP Flags

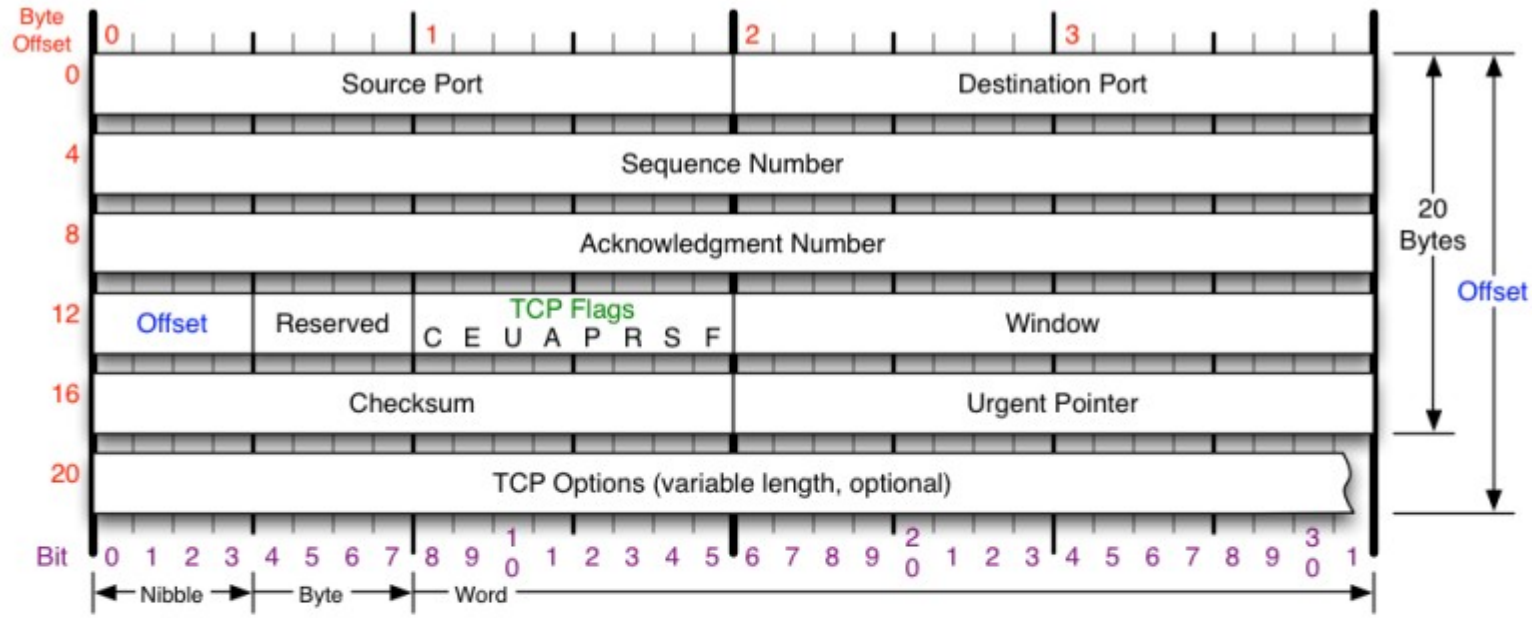
x D M

x 0x80 reserved (evil bit)
D 0x40 Do Not Fragment
M 0x20 More Fragments follow

RFC 791

Please refer to RFC 791 for the complete Internet Protocol (IP) Specification.

TCP HEADERS



TCP Flags

C E U A P R S F

Congestion Window
C 0x80 Reduced (CWR)
E 0x40 ECN Echo (ECE)
U 0x20 Urgent
A 0x10 Ack
P 0x08 Push
R 0x04 Reset
S 0x02 Syn
F 0x01 Fin

Congestion Notification

ECN (Explicit Congestion Notification). See RFC 3168 for full details, valid states below.

Packet State	DSB	ECN bits
Syn	0 0	1 1
Syn-Ack	0 0	0 1
Ack	0 1	0 0
No Congestion	0 1	0 0
No Congestion	1 0	0 0
Congestion	1 1	0 0
Receiver Response	1 1	0 1
Sender Response	1 1	1 1

TCP Options

0 End of Options List
1 No Operation (NOP, Pad)
2 Maximum segment size
3 Window Scale
4 Selective ACK ok
8 Timestamp

Checksum

Checksum of entire TCP segment and pseudo header (parts of IP header)

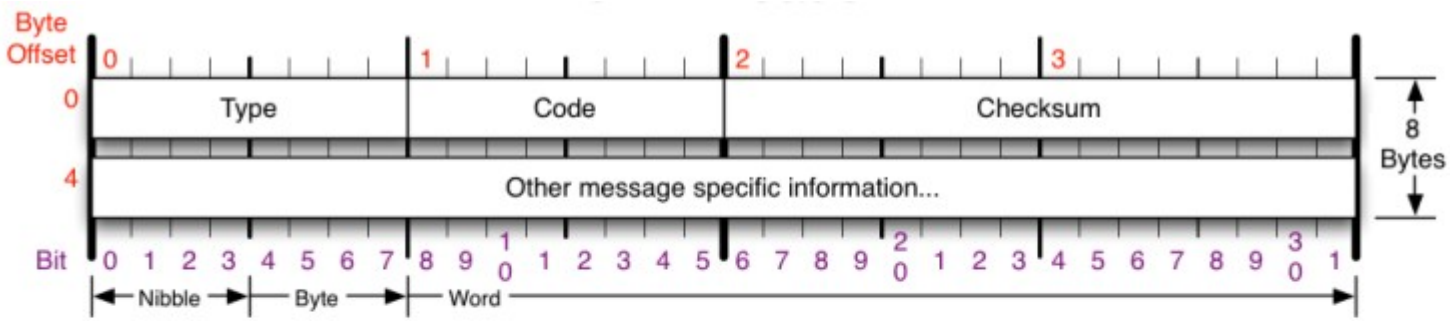
Offset

Number of 32-bit words in TCP header, minimum value of 5. Multiply by 4 to get byte count.

RFC 793

Please refer to RFC 793 for the complete Transmission Control Protocol (TCP) Specification.

ICMP HEADERS



ICMP Message Types

Type	Code/Name
0	Echo Reply
3	Destination Unreachable
	0 Net Unreachable
	1 Host Unreachable
	2 Protocol Unreachable
	3 Port Unreachable
	4 Fragmentation required, and DF set
	5 Source Route Failed
	6 Destination Network Unknown
	7 Destination Host Unknown
	8 Source Host Isolated
	9 Network Administratively Prohibited
	10 Host Administratively Prohibited
	11 Network Unreachable for TOS
3	Destination Unreachable (continued)
	12 Host Unreachable for TOS
	13 Communication Administratively Prohibited
4	Source Quench
5	Redirect
	0 Redirect Datagram for the Network
	1 Redirect Datagram for the Host
	2 Redirect Datagram for the TOS & Network
	3 Redirect Datagram for the TOS & Host
8	Echo
9	Router Advertisement
10	Router Selection
11	Time Exceded
	0 TTL Exceeded
	1 Fragment Reassembly Time Exceeded
12	Parameter Problem
	0 Pointer Problem
	1 Missing a Required Operand
	2 Bad Length
13	Timestamp
14	Timestamp Reply
15	Information Request
16	Information Reply
17	Address Mask Request
18	Address Mask Reply
30	Traceroute

Checksum

Checksum of ICMP header

RFC 792

Please refer to RFC 792 for the Internet Control Message protocol (ICMP) specification.

TCP FLAGS HEX

0x00 NULL 0x01 FIN 0x02 SYN 0x03 FIN-SYN 0x08 PSH 0x09 FIN-PSH 0x0A SYN-PSH 0x0B FIN-SYN-PSH 0x10 ACK 0x11 FIN-ACK 0x12 SYN-ACK 0x13 FIN-SYN-ACK 0x18 PSH-ACK 0x19 FIN-PSH-ACK 0x1A SYN-PSH-ACK 0x1B FIN-SYN-PSH-ACK 0x40 ECE 0x41 FIN-ECE 0x42 SYN-ECE 0x43 FIN-SYN-ECE 0x48 PSH-ECE 0x49 FIN-PSH-ECE 0x4A SYN-PSH-ECE 0x4B FIN-SYN-PSH-ECE 0x50 ACK-ECE 0x51 FIN-ACK-ECE 0x52 SYN-ACK-ECE 0x53 FIN-SYN-ACK-ECE 0x58 PSH-ACK-ECE 0x59 FIN-PSH-ACK-ECE 0x5A SYN-PSH-ACK-ECE 0x5B FIN-SYN-PSH-ACK-ECE	0x80 CWR 0x81 FIN-CWR 0x82 SYN-CWR 0x83 FIN-SYN-CWR 0x88 PSH-CWR 0x89 FIN-PSH-CWR 0x8A SYN-PSH-CWR 0x8B FIN-SYN-PSH-CWR 0x90 ACK-CWR 0x91 FIN-ACK-CWR 0x92 SYN-ACK-CWR 0x93 FIN-SYN-ACK-CWR 0x98 PSH-ACK-CWR 0x99 FIN-PSH-ACK-CWR 0x9A SYN-PSH-ACK-CWR 0x9B FIN-SYN-PSH-ACK-CWR 0xC0 ECE-CWR 0xC1 FIN-ECE-CWR 0xC2 SYN-ECE-CWR 0xC3 FIN-SYN-ECE-CWR 0xC8 PSH-ECE-CWR 0xC9 FIN-PSH-ECE-CWR 0xCA SYN-PSH-ECE-CWR 0xCB FIN-SYN-PSH-ECE-CWR 0xD0 ACK-ECE-CWR 0xD1 FIN-ACK-ECE-CWR 0xD2 SYN-ACK-ECE-CWR 0xD3 FIN-SYN-ACK-ECE-CWR 0xD8 PSH-ACK-ECE-CWR 0xD9 FIN-PSH-ACK-ECE-CWR 0xDA SYN-PSH-ACK-ECE-CWR 0xDB FIN-SYN-PSH-ACK-ECE-CWR