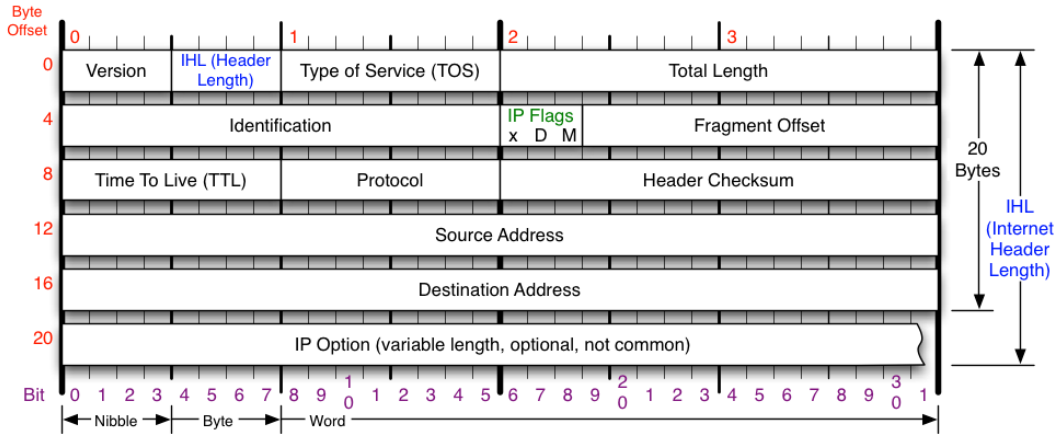


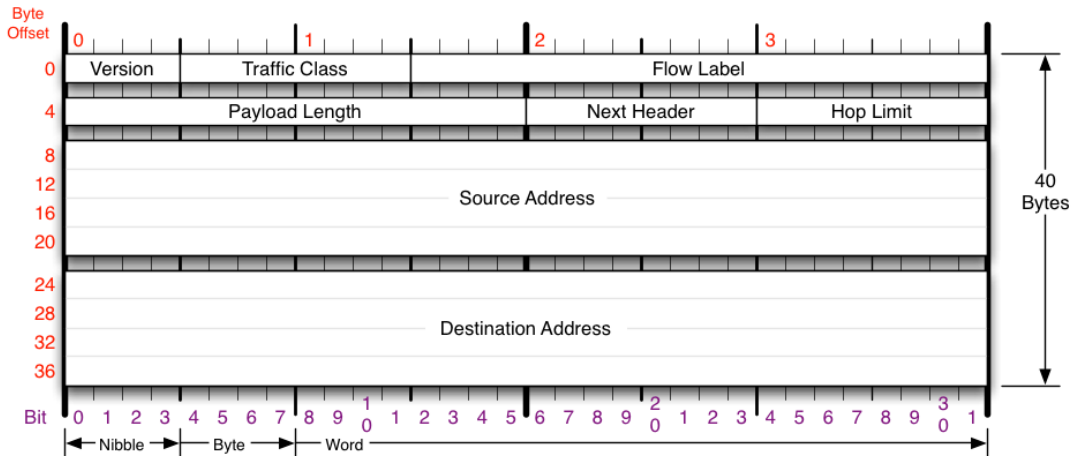
IPv4 Header



Version Version of IP Protocol. 4 and 6 are valid. This diagram represents version 4 structure only.	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	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.	IP Flags x D M x 0x80 reserved (evil bit) D 0x40 Do Not Fragment M 0x20 More Fragments follow
Header Length Number of 32-bit words in TCP header, minimum value of 5. Multiply by 4 to get byte count.	Total Length Total length of IP datagram, or IP fragment if fragmented. Measured in Bytes.	Header Checksum Checksum of entire IP header	RFC 791 Please refer to RFC 791 for the complete Internet Protocol (IP) Specification.

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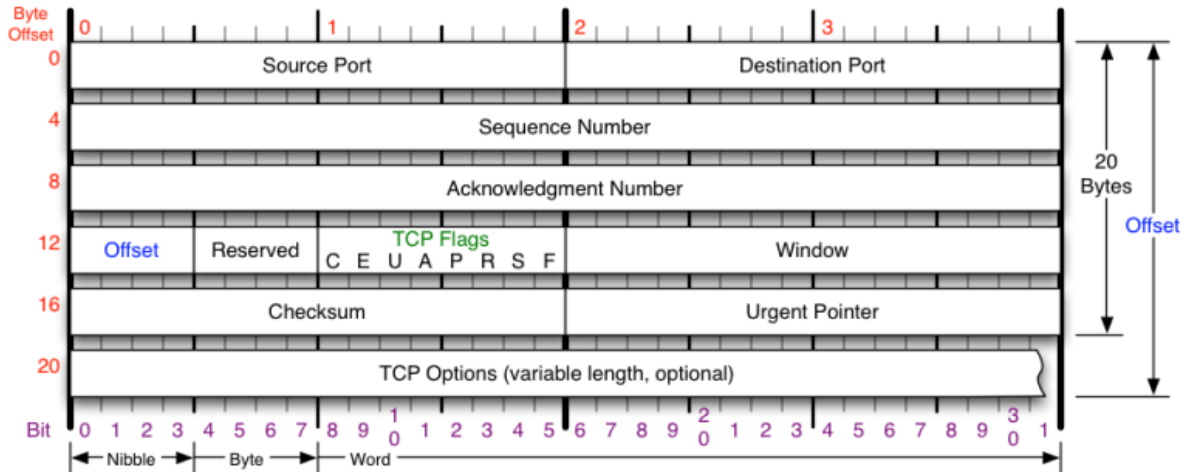
IPv6 Header



Version Version of IP Protocol. 4 and 6 are valid. This diagram represents version 6 structure only.	Payload Length 16-bit unsigned integer. Length of the IPv6 payload, i.e., the rest of the packet following this IPv6 header, in octets. Any extension headers are considered part of the payload.	Next Header 8-bit selector. Identifies the type of header immediately following the IPv6 header. Uses the same values as the IPv4 Protocol field.	Hop Limit 8-bit unsigned integer. Decrement by 1 by each node that forwards the packet. The packet is discarded if Hop Limit is decremented to zero.
Traffic Class 8 bit traffic class field.	Source Address 128-bit address of the originator of the packet.	Destination Address 128-bit address of the intended recipient of the packet (possibly not the ultimate recipient, if a Routing header is present).	RFC 2460 Please refer to RFC 2460 for the complete Internet Protocol version 6 (IPv6) Specification.
Flow Label 20 bit flow label.			

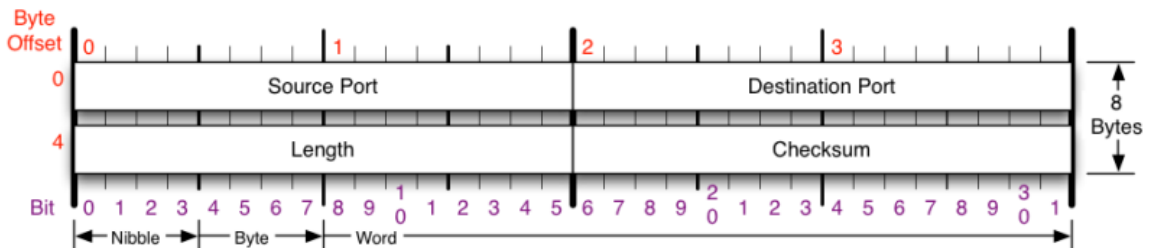
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TCP header



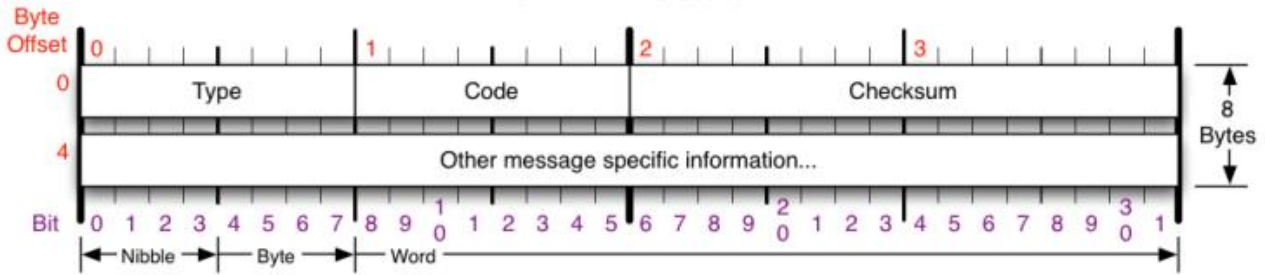
TCP Flags	Congestion Notification	TCP Options	Offset																											
C E U A P R S F	ECN (Explicit Congestion Notification). See RFC 3168 for full details, valid states below.	0 End of Options List 1 No Operation (NOP, Pad) 2 Maximum segment size 3 Window Scale 4 Selective ACK ok 8 Timestamp	Number of 32-bit words in TCP header, minimum value of 5. Multiply by 4 to get byte count.																											
<p>Congestion Window</p> <p>C 0x80 Reduced (CWR)</p> <p>E 0x40 ECN Echo (ECE)</p> <p>U 0x20 Urgent</p> <p>A 0x10 Ack</p> <p>P 0x08 Push</p> <p>R 0x04 Reset</p> <p>S 0x02 Syn</p> <p>F 0x01 Fin</p>	<table border="1"> <thead> <tr> <th>Packet State</th> <th>DSB</th> <th>ECN bits</th> </tr> </thead> <tbody> <tr> <td>Syn</td> <td>00</td> <td>11</td> </tr> <tr> <td>Syn-Ack</td> <td>00</td> <td>01</td> </tr> <tr> <td>Ack</td> <td>01</td> <td>00</td> </tr> <tr> <td>No Congestion</td> <td>01</td> <td>00</td> </tr> <tr> <td>No Congestion</td> <td>10</td> <td>00</td> </tr> <tr> <td>Congestion</td> <td>11</td> <td>00</td> </tr> <tr> <td>Receiver Response</td> <td>11</td> <td>01</td> </tr> <tr> <td>Sender Response</td> <td>11</td> <td>11</td> </tr> </tbody> </table>	Packet State	DSB	ECN bits	Syn	00	11	Syn-Ack	00	01	Ack	01	00	No Congestion	01	00	No Congestion	10	00	Congestion	11	00	Receiver Response	11	01	Sender Response	11	11	<p>Checksum</p> <p>Checksum of entire TCP segment and pseudo header (parts of IP header)</p>	<p>RFC 793</p> <p>Please refer to RFC 793 for the complete Transmission Control Protocol (TCP) Specification.</p>
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No Congestion	10	00																												
Congestion	11	00																												
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Sender Response	11	11																												

UDP header



Checksum	RFC 768
Checksum of entire UDP segment and pseudo header (parts of IP header)	Please refer to RFC 768 for the complete User Datagram Protocol (UDP) Specification.

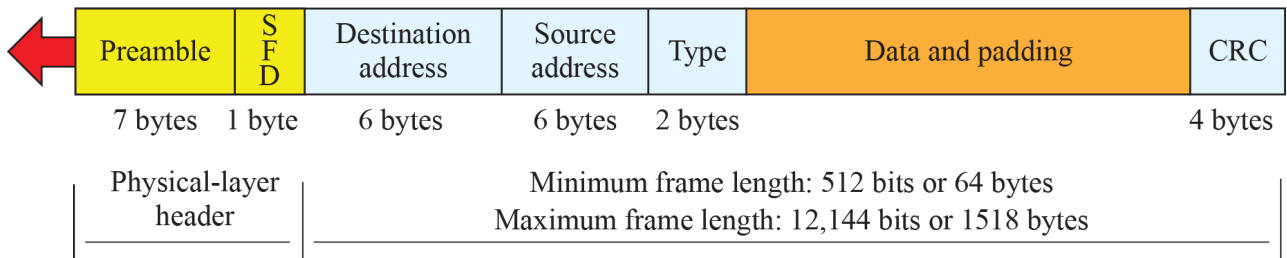
ICMP header



ICMP Message Types			Checksum																																																																																						
<table border="0"> <tr><td>Type</td><td>Code/Name</td></tr> <tr><td>0</td><td>Echo Reply</td></tr> <tr><td>3</td><td>Destination Unreachable</td></tr> <tr><td>0</td><td>Net Unreachable</td></tr> <tr><td>1</td><td>Host Unreachable</td></tr> <tr><td>2</td><td>Protocol Unreachable</td></tr> <tr><td>3</td><td>Port Unreachable</td></tr> <tr><td>4</td><td>Fragmentation required, and DF set</td></tr> <tr><td>5</td><td>Source Route Failed</td></tr> <tr><td>6</td><td>Destination Network Unknown</td></tr> <tr><td>7</td><td>Destination Host Unknown</td></tr> <tr><td>8</td><td>Source Host Isolated</td></tr> <tr><td>9</td><td>Network Administratively Prohibited</td></tr> <tr><td>10</td><td>Host Administratively Prohibited</td></tr> <tr><td>11</td><td>Network Unreachable for TOS</td></tr> </table>	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	<table border="0"> <tr><td>Type</td><td>Code/Name</td></tr> <tr><td>3</td><td>Destination Unreachable (continued)</td></tr> <tr><td>12</td><td>Host Unreachable for TOS</td></tr> <tr><td>13</td><td>Communication Administratively Prohibited</td></tr> <tr><td>4</td><td>Source Quench</td></tr> <tr><td>5</td><td>Redirect</td></tr> <tr><td>0</td><td>Redirect Datagram for the Network</td></tr> <tr><td>1</td><td>Redirect Datagram for the Host</td></tr> <tr><td>2</td><td>Redirect Datagram for the TOS & Network</td></tr> <tr><td>3</td><td>Redirect Datagram for the TOS & Host</td></tr> <tr><td>8</td><td>Echo</td></tr> <tr><td>9</td><td>Router Advertisement</td></tr> <tr><td>10</td><td>Router Selection</td></tr> </table>	Type	Code/Name	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	<table border="0"> <tr><td>Type</td><td>Code/Name</td></tr> <tr><td>11</td><td>Time Exceeded</td></tr> <tr><td>0</td><td>TTL Exceeded</td></tr> <tr><td>1</td><td>Fragment Reassembly Time Exceeded</td></tr> <tr><td>12</td><td>Parameter Problem</td></tr> <tr><td>0</td><td>Pointer Problem</td></tr> <tr><td>1</td><td>Missing a Required Operand</td></tr> <tr><td>2</td><td>Bad Length</td></tr> <tr><td>13</td><td>Timestamp</td></tr> <tr><td>14</td><td>Timestamp Reply</td></tr> <tr><td>15</td><td>Information Request</td></tr> <tr><td>16</td><td>Information Reply</td></tr> <tr><td>17</td><td>Address Mask Request</td></tr> <tr><td>18</td><td>Address Mask Reply</td></tr> <tr><td>30</td><td>Traceroute</td></tr> </table>	Type	Code/Name	11	Time Exceeded	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	<p>Checksum of ICMP header</p> <p style="text-align: center;">RFC 792</p> <p>Please refer to RFC 792 for the Internet Control Message protocol (ICMP) specification.</p>
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18	Address Mask Reply																																																																																								
30	Traceroute																																																																																								

Preamble: 56 bits of alternating 1s and 0s
SFD: Start frame delimiter, flag (10101011)

Minimum payload length: 46 bytes
 Maximum payload length: 1500 bytes



The TYPE field

CODE (HEXADECIMAL)	MEANS
0800	IPv4
0806	ARP
86dd	IPv6

ARP header

