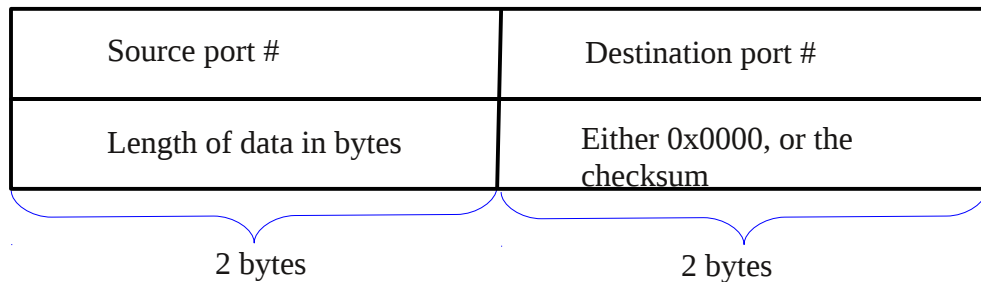


## A UDP datagram - RFC 768

<http://www.ietf.org/rfc/rfc768.txt>

The UDP header attached to a UDP datagram has a definite structure as shown in the diagram below.



The UDP header is always 8 bytes, with structure as shown above. Remember that a hex # is 4 bits, so 2 hex numbers will constitute a byte, and 4 hex numbers will be 2 bytes. So in a UDP header, each of the source port, destination port, Length, and checksum are all 2 bytes long. The checksum is not required to be calculated – if it is not calculated, this field is 0x0000.

See separate slide on checksum calculation.

The following wireshark screenshot shows a UDP packet captured from the wire. Its source port is 0x0035, Destination port is 0x9cfc, total length is 0x0101, and checksum is 0x8a44. In other words, the total data length (without UDP header) is 0x0101 bytes = (257 decimal) bytes; the source port (in decimal) is 53, destination port (in decimal) is 40188.

Capturing from wlan0 [Wireshark 1.6.8 (SVN Rev Unknown from unknown)]

File Edit View Go Capture Analyze Statistics Telephony Tools Internals Help

Filter: **udp** Expression... Clear Apply

No.	Time	Source	Destination	Protocol	Length	Info
254	50.460364	167.206.251.130	192.168.2.111	DNS	291	Standard query
255	50.460658	192.168.2.111	167.206.251.130	DNS	91	Standard query
256	50.480082	167.206.251.130	192.168.2.111	DNS	291	Standard query
266	50.565294	192.168.2.111	167.206.251.130	DNS	89	Standard query
267	50.585637	167.206.251.130	192.168.2.111	DNS	300	Standard query
268	50.586036	192.168.2.111	167.206.251.130	DNS	89	Standard query
269	50.604493	167.206.251.130	192.168.2.111	DNS	300	Standard query
297	51.293655	192.168.2.107	239.255.255.250	SSDP	221	NOTIFY * HTTP/

Frame 256: 291 bytes on wire (2328 bits), 291 bytes captured (2328 bits)

Ethernet II, Src: Cisco-Li\_9e:85:e0 (00:0f:66:9e:85:e0), Dst: LiteonTe\_87:b5:ca (70:f1:a1:87)

Internet Protocol Version 4, Src: 167.206.251.130 (167.206.251.130), Dst: 192.168.2.111 (192.168.2.111)

User Datagram Protocol, Src Port: domain (53), Dst Port: 40188 (40188)

Domain Name System (response)

```

0000  70 f1 a1 87 b5 ca 00 0f 66 9e 85 e0 08 00 45 00  p.....f.....E.
0010  01 15 00 00 40 00 39 11 da 6f a7 ce fb 82 c0 a8  ....@.9. .o.....
0020  02 6f 00 35 9c fc 01 01 8a 44 e3 84 81 80 00 01  .o.5.... .D.....
0030  00 0c 00 00 00 00 00 0c 73 61 66 65 62 72 6f 77 73  ....s afebrows
0040  69 6e 67 07 63 6c 69 65 6e 74 73 06 67 6f 6f 67  ing.clie nts.goog
0050  6c 65 03 63 6f 6d 00 00 01 00 01 c0 0c 00 05 00  le.com..
0060  01 00 00 01 0f 00 0c 07 63 6c 69 65 6e 74 73 01  .... clients.
0070  6c c0 21 c0 3d 00 01 00 01 00 00 00 b7 00 04 4a  }.!.=... .....J
0080  7d e2 c0 c0 3d 00 01 00 01 00 00 00 b7 00 04 4a  }...=... .....J
0090  7d e2 c5 c0 3d 00 01 00 01 00 00 00 b7 00 04 4a  }...=... .....J
00a0  7d e2 c1 c0 3d 00 01 00 01 00 00 00 b7 00 04 4a  }...=... .....J
00b0  7d e2 c2 c0 3d 00 01 00 01 00 00 00 b7 00 04 4a  }...=... .....J
00c0  7d e2 c4 c0 3d 00 01 00 01 00 00 00 b7 00 04 4a  }...=... .....J
00d0  7d e2 c7 c0 3d 00 01 00 01 00 00 00 b7 00 04 4a  }...=... .....J
00e0  7d e2 c6 c0 3d 00 01 00 01 00 00 00 b7 00 04 4a  }...=... .....J
00f0  7d e2 c3 c0 3d 00 01 00 01 00 00 00 b7 00 04 4a  }...=... .....J
0100  7d e2 c8 c0 3d 00 01 00 01 00 00 00 b7 00 04 4a  }...=... .....J
0110  7d e2 ce c0 3d 00 01 00 01 00 00 00 b7 00 04 4a  }...=... .....J
0120  7d e2 c9                                     }..
  
```

Source port # 00 35	Destination port # 9c fc
Length of data in bytes 01 01	Checksum 8a 44

2 bytes

2 bytes