

1.

No.	Time	Source	Destination	Protocol	Info
12	15:29:18.893919	192.168.1.1	239.255.255.250	UDP	Source port: ssdp Destination port: ssdp

Frame 12 (375 bytes on wire, 375 bytes captured)

Ethernet II, Src: 58:6d:8f:3d:3b:ca (58:6d:8f:3d:3b:ca), Dst: IPv4mcast_7f:ff:fa (01:00:5e:7f:ff:fa)

Internet Protocol, Src: 192.168.1.1 (192.168.1.1), Dst: 239.255.255.250 (239.255.255.250)

User Datagram Protocol, Src Port: ssdp (1900), Dst Port: ssdp (1900)

Source port: ssdp (1900)

Destination port: ssdp (1900)

Length: 341

Checksum: 0xb662 [validation disabled]

UDP header contains 4 fields: source port,destination port,length,checksum

2.

Applications Places System

udp_capture - Wireshark

Filter: udp Expression: Clear Apply

No.	Time	Source	Destination	Protocol	Info
3	15:28:58.900678	192.168.1.144	164.100.17.3	DNS	Standard query A www.mit.edu
4	15:28:59.861797	192.168.1.144	164.100.3.1	DNS	Standard query A www.mit.edu
5	15:29:00.291710	164.100.3.1	192.168.1.144	DNS	Standard query response A 18.9.22.169
8	15:29:10.186596	fe80::c09c:ae51:8a5d:f102::1:2	ff02::1:2	DHCPv6	Solicit
9	15:29:11.223940	fe80::c09c:ae51:8a5d:f102::1:2	ff02::1:2	DHCPv6	Solicit
10	15:29:13.465002	fe80::c09c:ae51:8a5d:f102::1:2	ff02::1:2	DHCPv6	Solicit
11	15:29:17.457169	fe80::c09c:ae51:8a5d:f102::1:2	ff02::1:2	DHCPv6	Solicit
12	15:29:18.893919	192.168.1.1	239.255.255.250	UDP	Source port: ssdp Destination port: ssdp
13	15:29:18.897090	192.168.1.1	239.255.255.250	UDP	Source port: ssdp Destination port: ssdp
14	15:29:18.908126	192.168.1.1	239.255.255.250	UDP	Source port: ssdp Destination port: ssdp
15	15:29:18.903693	192.168.1.1	239.255.255.250	UDP	Source port: ssdp Destination port: ssdp
16	15:29:18.907300	192.168.1.1	239.255.255.250	UDP	Source port: ssdp Destination port: ssdp
17	15:29:18.918551	192.168.1.1	239.255.255.250	UDP	Source port: ssdp Destination port: ssdp
18	15:29:18.913500	192.168.1.1	239.255.255.250	UDP	Source port: ssdp Destination port: ssdp

* Frame 12 (375 bytes on wire, 375 bytes captured)

- * Ethernet II, Src: 58:6d:8f:3d:3b:ca (58:6d:8f:3d:3b:ca), Dst: IPv4mcast_7f:ff:fa (01:00:5e:7f:ff:fa)
- * Internet Protocol, Src: 192.168.1.1 (192.168.1.1), Dst: 239.255.255.250 (239.255.255.250)
- * User Datagram Protocol, Src Port: ssdp (1900), Dst Port: ssdp (1900)
 - Source port: ssdp (1900)
 - Destination port: ssdp (1900)
 - Length: 341
 - * Checksum: 0xb662 [validation disabled]
- * Data (333 bytes)

0020 ff fa 07 6c 01 55 b6 02 4e 4f 54 49 46 59 ..I..U..bNOTIFY

0030 20 2a 28 48 54 50 2f 31 2e 31 0d 8a 48 6f 73 * HTTP/1.1..Hos

0040 74 3a 28 32 33 39 2e 32 35 35 2e 32 35 35 2e 32 t: 239.255.255.2

0050 35 30 3a 31 39 38 30 0d 0a 43 61 63 68 65 2d 43 50:1900..Cache-C

Source Port (udp.srcport), 2 bytes Packets: 140 Displayed: 83 Marked: 0 Profile: Default

Each header is 2 bytes long

3.

Length is the sum of data length and length of headers

4.

The maximum number of bytes that can be included in a UDP payload is $2^{16} - 1$ - header bytes = $65535 - 8 = 65527$ bytes.

5.

The largest possible source port number is $2^{16} - 1 = 65535$.

6.

Internet Protocol, Src: 192.168.1.1 (192.168.1.1), Dst: 239.255.255.250 (239.255.255.250)

Version: 4

Header length: 20 bytes

Differentiated Services Field: 0x00 (DSCP 0x00: Default; ECN: 0x00)

Total Length: 361

Identification: 0x0000 (0)

Flags: 0x02 (Don't Fragment)

Fragment offset: 0

Time to live: 1

Protocol: UDP (0x11)

The IP protocol number for UDP is 0x11 hex, which is 17 in decimal value.

7.

Checksum is the 16-bit one's complement of the one's complement sum of a pseudo header of information from the IP header, the UDP header, and the data, padded with zero octets at the end (if necessary) to make a multiple of two octets.

In other words, all 16-bit words are summed using one's complement arithmetic. The sum is then one's complemented to yield the value of the UDP checksum field.

8.

No.	Time	Source	Destination	Protocol	Info
1	19:38:44.221178	192.168.1.101	68.87.71.226	UDP	Source port: 4372 Destination port: domain

Frame 1 (85 bytes on wire, 85 bytes captured)

Ethernet II, Src: DellComp_4f:36:23 (00:08:74:4f:36:23), Dst: Cisco-Li_f4:eb:a8 (00:16:b6:f4:eb:a8)

Internet Protocol, Src: 192.168.1.101 (192.168.1.101), Dst: 68.87.71.226 (68.87.71.226)

User Datagram Protocol, Src Port: 4372 (4372), Dst Port: domain (53)

Data (43 bytes)

No.	Time	Source	Destination	Protocol	Info
2	19:38:44.233659	68.87.71.226	192.168.1.101	UDP	Source port: domain Destination port: 4372

Frame 2 (137 bytes on wire, 137 bytes captured)

Ethernet II, Src: Cisco-Li_f4:eb:a8 (00:16:b6:f4:eb:a8), Dst: DellComp_4f:36:23 (00:08:74:4f:36:23)

Internet Protocol, Src: 68.87.71.226 (68.87.71.226), Dst: 192.168.1.101 (192.168.1.101)

User Datagram Protocol, Src Port: domain (53), Dst Port: 4372 (4372)

Data (95 bytes)

The source port of the UDP packet sent by the host is the same as the destination port of the reply packet, and conversely the destination port of the UDP packet sent by the host is the same as the source port of the reply packet.