

Memento

Ethernet

```
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|Destination| Source | Data Type*|          Data          | FCS |
| (6 bytes) | (6 bytes) | (2 bytes) | (46-1500 bytes) | (4 bytes)|
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
```

*Data Type:

- 0x0800 : IP
- 0x0806 : ARP
- 0x0835 : RARP

IP Header

```
0          1          2          3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|Version| IHL |Type of Service|          Total Length          |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|          Identification          |Flags|          Fragment Offset |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Time to Live | Protocol* |          Header Checksum          |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|          Source Address          |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|          Destination Address          |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|          Options          |          Padding          |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
```

*Protocol :

- 0x06 : TCP
- 0x11 : UDP

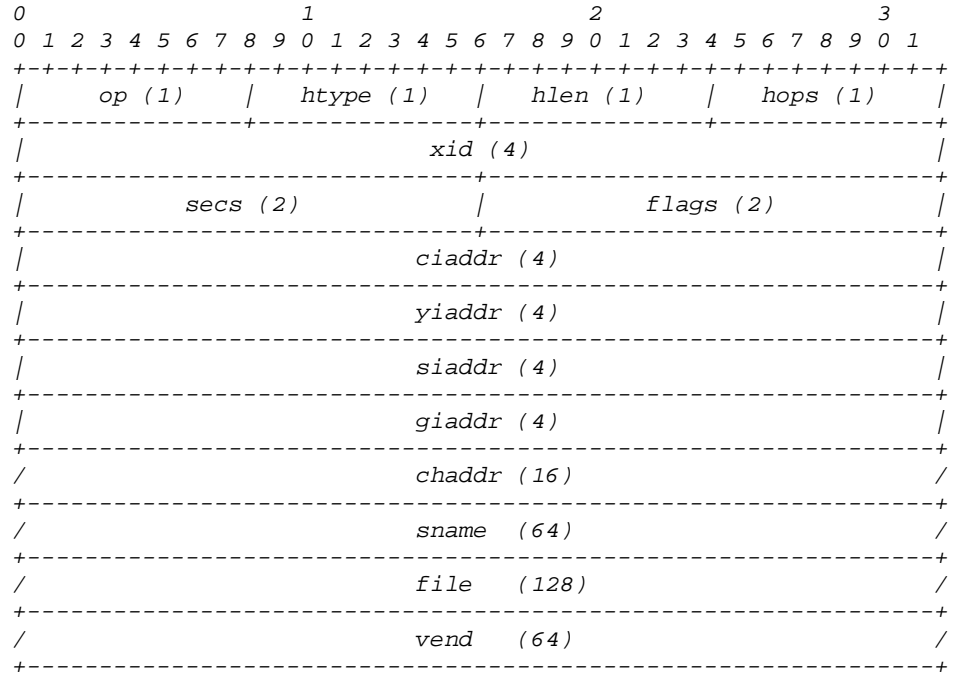
TCP Header

```
0          1          2          3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|          Source Port          |          Destination Port          |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|          Sequence Number          |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|          Acknowledgment Number          |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Data |          |U|A|P|R|S|F|          |
| Offset| Reserved |R|C|S|S|Y|I|          Window          |
|          |          |G|K|H|T|N|N|          |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|          Checksum          |          Urgent Pointer          |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
/          Options          |          Padding          /
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
/          data ...
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
```

UDP Header

```
0          7 8          15 16          23 24          31
+-----+-----+-----+-----+-----+-----+-----+-----+
|          Source          |          Destination          |
|          Port          |          Port          |
+-----+-----+-----+-----+-----+-----+-----+-----+
|          Length          |          Checksum          |
+-----+-----+-----+-----+-----+-----+-----+-----+
|
|          data octets ...
+-----+-----+-----+-----+-----+-----+-----+-----+
```

BOOTP



Options DHCP (valeurs décimales):

- 01 : subnet mask
- 02 : time offset
- 03 : router
- 06 : DNS
- 12 : host name
- 15 : domain name
- 28 : broadcast address
- 44 : netbios over TCP/IP name server
- 47 : netbios over TCP/IP scope

50 : requested IP address

- 51 : lease time
- 53 : DHCP message type
 - 01 : discover
 - 02 : offer
 - 03 : request
 - 05 : ack
- 54 : server identifier
- 55 : parameter request list

Table ASCII

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|----------------|-------------------|---------------|---------------|----------------|
| 0 | 00 0000 NUL | 01 0001 SOH | 02 0010 STX | 03 0011 ETX | 04 0100 EOT | 05 0101 ENQ | 06 0110 ACK | 07 0111 BEL | 08 1000 BS | 09 1001 HT | 0A 1010 LF | 0B 1011 VT | 0C 1100 FF | 0D 1101 CR | 0E 1110 SO | 0F 1111 SI |
| 1 | 10 0001 DLE | 11 0010 DC1 | 12 0011 DC2 | 13 0100 DC3 | 14 0101 DC4 | 15 0110 NAK | 16 0111 SYN | 17 1000 ETB | 18 1001 CAN | 19 1010 EM | 1A 1011 SUB | 1B 1100 ESC | 1C 1101 FS | 1D 1110 GS | 1E 1111 RS | 1F 1111 US |
| 2 | 20 0100 SP | 21 0101 ! | 22 0110 " | 23 0111 # | 24 1000 \$ | 25 1001 % | 26 1010 & | 27 1011 ' | 28 1100 (| 29 1101) | 2A 1110 * | 2B 1111 + | 2C 1111 , | 2D 1111 - | 2E 1111 . | 2F 1111 / |
| 3 | 30 0100 0 | 31 0101 1 | 32 0110 2 | 33 0111 3 | 34 1000 4 | 35 1001 5 | 36 1010 6 | 37 1011 7 | 38 1100 8 | 39 1101 9 | 3A 1110 : | 3B 1111 ; | 3C 1111 < | 3D 1111 = | 3E 1111 > | 3F 1111 ? |
| 4 | 40 0100 @ | 41 0101 A | 42 0110 B | 43 0111 C | 44 1000 D | 45 1001 E | 46 1010 F | 47 1011 G | 48 1100 H | 49 1101 I | 4A 1110 J | 4B 1111 K | 4C 1111 L | 4D 1111 M | 4E 1111 N | 4F 1111 O |
| 5 | 50 0101 P | 51 0110 Q | 52 0111 R | 53 1000 S | 54 1001 T | 55 1010 U | 56 1011 V | 57 1100 W | 58 1101 X | 59 1110 Y | 5A 1111 Z | 5B 1111 [| 5C 1111 \] | 5D 1111 ^ | 5E 1111 _ | 5F 1111 ` |
| 6 | 60 0110 ' | 61 0111 a | 62 1000 b | 63 1001 c | 64 1010 d | 65 1011 e | 66 1100 f | 67 1101 g | 68 1110 h | 69 1111 i | 6A 1111 j | 6B 1111 k | 6C 1111 l | 6D 1111 m | 6E 1111 n | 6F 1111 o |
| 7 | 70 0111 p | 71 1000 q | 72 1001 r | 73 1010 s | 74 1011 t | 75 1100 u | 76 1101 v | 77 1110 w | 78 1111 x | 79 1111 y | 7A 1111 z | 7B 1111 { | 7C 1111 | 7D 1111 } | 7E 1111 ~ | 7F 1111 DEL |