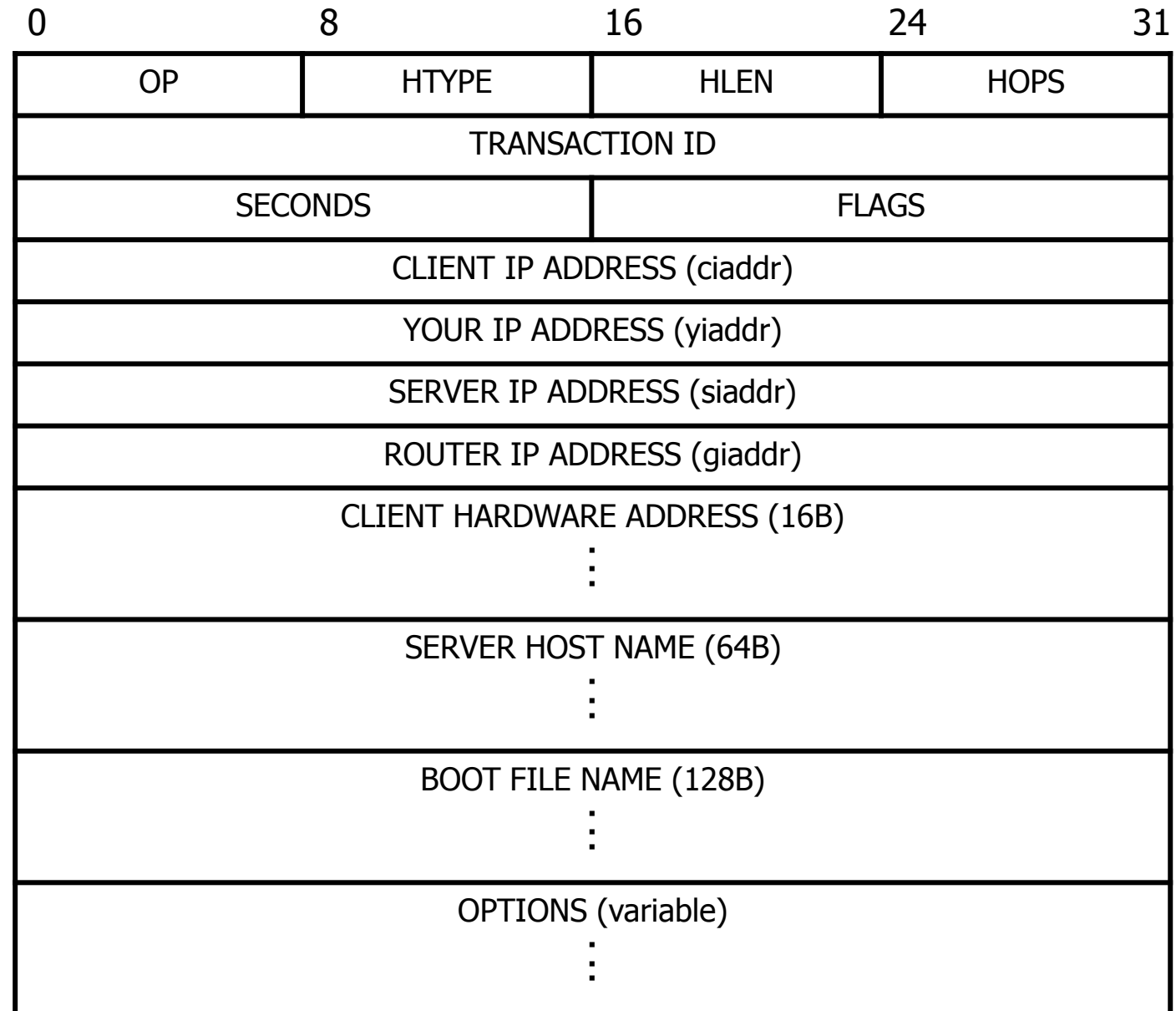


Introduction to options in DHCP messages

2017-06-02

DHCP Message Format



Fields by DHCP Client(1)^[RFC2131]

Field	DHCPDISCOVER	DHCPREQUEST	DHCPINFORM	DHCPRELEASE
OP	request	request	request	request
HTYPE	Ethernet(1)	1	1	1
HLEN	6	6	6	6
HOPS	0	0	0	0
TransactionID	selected by client	copied from DHCPOFFER	selected by client	selected by client
Seconds	0 or seconds since DHCP process started	0 or seconds since DHCP process started	0 or seconds since DHCP process started	0
Flags	broadcast(0x8000)	broadcast in address acquisition; unicast in lease renewal	unicast(0)	unicast(0)

Fields by DHCP Client(2)

Field	DHCPDISCOVER	DHCPREQUEST	DHCPINFORM	DHCPRELEASE
ciaddr	0	0 in address acquisition; client's IP address in lease renewal	client's IP address	client's IP address
yiaddr	0	0	0	0
siaddr	0	0	0	0
giaddr	0	0	0	0
cliendhardwareaddress	MAC address of client, padded with 0	MAC address of client, , padded with 0	MAC address of client, padded with 0	MAC address of client, padded with 0
server host name	0	0	0	0
boot file name	0	0	0	0
magic cookie(用于和Bootp兼容)	99 130 83 99(4个十进制数)	99 130 83 99	99 130 83 99	99 130 83 99

Options by DHCP Client(T-L-V format)

Field	DHCPDISCOVER	DHCPREQUEST	DHCPINFORM	DHCPRELEASE
Message Type(3B)	53 1 1	53 1 3	53 1 8	53 1 7
Requested IP address	Must not	must in address acquisition, must not in renewal	must not	must not
IP address lease time	must not	may	must not	must not
Client Identifier	may	may	may	may
Host name	may	may	may	may
Vendor class identifier	may	may	may	must not
Server Identifier	must not	must in address acquisition, must not in renewal	must not	must
Parameter request list	must	must	must	must not

Fields by DHCP Server(1)

Field	DHCPOFFER	DHCPACK	DHCPNAK
OP	reply	reply	reply
HTYPE	Ethernet(1)	1	1
HLEN	6	6	6
HOPS	0	0	0
TransactionID	copied from DHCPDISCOVER	copied from DHCPREQUEST or DHCPINFORM	copied from DHCPREQUEST
Seconds	0	0	0
Flags	copied from DHCPDISCOVER	copied from DHCPREQUEST or DHCPINFORM	copied from DHCPREQUEST

Fields by DHCP Server(2)

Field	DHCPOFFER	DHCPACK	DHCPNAK
ciaddr	0	0 or 'ciaddr' from DHCPREQUEST(DHCPINFORM)	0
yiaddr	IP address offered	IP address assigned or copied from DHCPINFORM	0
siaddr	0	0	0
giaddr	0	0	0
cliendhardwareaddress	copied from DHCPDISCOVER, padded with 0	copied from DHCPREQUEST(DHCPINFORM), padded with 0	copied from DHCPREQUEST, padded with 0
server host name	0	0	0
boot file name	0	0	0
magic cookie(用于和Bootp兼容)	99 130 83 99	99 130 83 99	99 130 83 99

Options by DHCP Server(T-L-V format)

Field	DHCPOFFER	DHCPACK	DHCPNAK
Message Type(3B)	53 1 2	53 1 5	53 1 6
Requested IP address	Must not	must not	must not
IP address lease time	must not	must in reply to DHCPREQUEST, must not in reply to DHCPINFORM	must not
Client Identifier	must not	must not	may
Vendor class identifier	may	may	may
Server Identifier	must	must	must
Parameter request list	must not	must not	must not
subnet mask	must	must	must not
router	must	must	must not
domain name server	must	must	must not
renewal time value	must	must	must not
rebinding time value	must	must	must not

Example of DHCPINFORM

should be replaced by
IP address of DHCP Server

应用显示过滤器 ... <Ctrl-/>

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	192.168.4.133	255.255.255.255	DHCP	342	DHCP Inform - Transaction ID 0x7db732ce
2	0.002334	192.168.4.1	192.168.4.133	DHCP	350	DHCP ACK - Transaction ID 0x7db732ce
3	14.466611	192.168.4.133	192.168.4.1	DHCP	342	DHCP Release - Transaction ID 0x0b1885e2

- ▶ Frame 1: 342 bytes on wire (2736 bits), 342 bytes captured (2736 bits) on interface 0
- ▶ Ethernet II, Src: WistronI_3c:a7:0f (f0:de:f1:3c:a7:0f), Dst: Broadcast (ff:ff:ff:ff:ff:ff)
- ▶ Internet Protocol Version 4, Src: 192.168.4.133, Dst: 255.255.255.255
- ▶ User Datagram Protocol, Src Port: 68, Dst Port: 67
- ▲ Bootstrap Protocol (Inform)

Message type: Boot Request (1)

Hardware type: Ethernet (0x01)

Hardware address length: 6

Hops: 0

Transaction ID: 0x7db732ce

Seconds elapsed: 0

▶ Bootp flags: 0x8000, Broadcast flag (Broadcast)

Client IP address: 192.168.4.133

Your (client) IP address: 0.0.0.0

Next server IP address: 0.0.0.0

Relay agent IP address: 0.0.0.0

Client MAC address: WistronI_3c:a7:0f (f0:de:f1:3c:a7:0f)

Client hardware address padding: 00000000000000000000

replaced with unicast

Example of corresponding DHCPACK

应用显示过滤器 ... <Ctrl-/>						
No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	192.168.4.133	255.255.255.255	DHCP	342	DHCP Inform - Transaction ID 0x7db732ce
2	0.002334	192.168.4.1	192.168.4.133	DHCP	350	DHCP ACK - Transaction ID 0x7db732ce
3	1.14.466611	192.168.4.133	192.168.4.1	DHCP	342	DHCP Release - Transaction ID 0x0b1885a2

▶ Frame 2: 350 bytes on wire (2800 bits), 350 bytes captured (2800 bits) on interface 0

▶ Ethernet II, Src: HuaweiSy_02:d0:88 (00:22:a1:02:d0:88), Dst: WistronI_3c:a7:0f (f0:de:f1:3c:a7:0f)

▶ Internet Protocol Version 4, Src: 192.168.4.1, Dst: 192.168.4.133

▶ User Datagram Protocol, Src Port: 67, Dst Port: 68

▶ Bootstrap Protocol (ACK)

Message type: Boot Reply (2)

Hardware type: Ethernet (0x01)

Hardware address length: 6

Hops: 0

Transaction ID: 0x7db732ce

Seconds elapsed: 0

▶ Bootp flags: 0x8000, Broadcast flag (Broadcast)

Client IP address: 192.168.4.133

Your (client) IP address: 192.168.4.133

Next server IP address: 0.0.0.0

Relay agent IP address: 0.0.0.0

Client MAC address: WistronI_3c:a7:0f (f0:de:f1:3c:a7:0f)

Client hardware address padding: 00000000000000000000

replaced with **unicast**