

INTERNET-DRAFT

"Internet Protocol Five Fields - Dynamic Host Configuration Protocol",
Alexey Eromenko, 2016-09-29,
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Dynamic Host Configuration Protocol

Required modifications for
Internet Protocol "Five Fields"
PROTOCOL SPECIFICATION draft

Abstract

This document describes the changes needed from DHCPv4, as defined in [RFC-2131](#), to bring DHCP to IP-FF.

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Introduction

DHCP in IPv4 works remarkably well, and so a good idea is to keep it almost unchanged in IP-FF. Instead of publishing a full RFC, I focus only on changes required from DHCPv4.

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1. Format of a DHCP-FF message

[illegible]

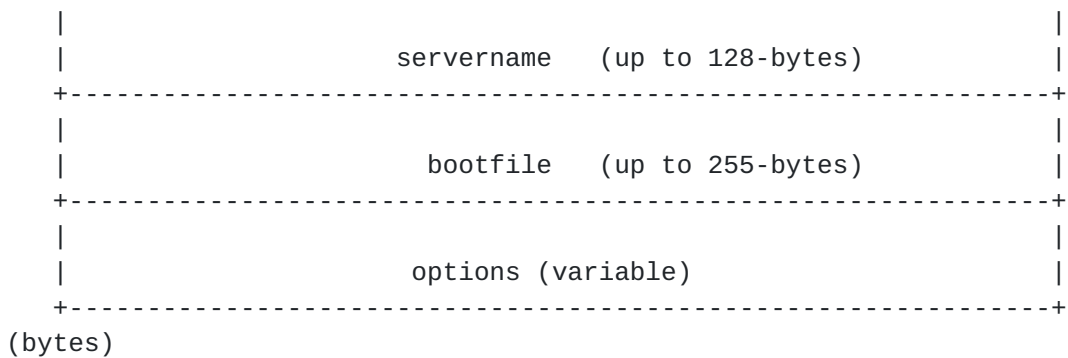


Figure 1: Format of a DHCP message

2. Changes from DHCPv4, as defined in [RFC-2131](#)

FIELD	BITS	DESCRIPTION
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Version	4	Versioning was added to simplify future evolution. = 1
Hops	4	Hops field shrunk from 8 bits to 4 bits. (if you design a network with a DHCP server over 15 hops away from your clients, you're doing it wrong.)
servername	128	Bytes. It was extended from 64 bytes, mainly for Unicode compatibility reasons. A single Unicode character can take 2-3 bytes.
file	255	Bytes. It was extended from 128 bytes, mainly for Unicode compatibility reasons. A single Unicode character can take 2-3 bytes.

'Seconds' and 'flags' fields were shrunk from 16-bits to 14-bits.

All address fields were extended to 50-bits; forced change.

3. Booting IP-FF via DHCP

In general case, booting IP-FF via DHCP is similar to IPv4.
That is using an unspecified IP-FF address as source (0.0.0.0) and
a physical MAC address (on Ethernet) or other Data-Link Layer
address.

The destination multicast address for DHCP servers is 99.9.0.0.3
The destination multicast address for DHCP clients is 99.9.0.0.4

4. Throttling / Delayed replies on High usage (recommendation)

If a DHCP server is also the default gateway, it MAY artificially *delay* giving IP-FF addresses, if CPU or network usage is high, allowing for another DHCP server to answer DHCP, and allowing them becoming default gateways, providing a per-node load-balancing (as opposed to per-session or per-packet load-balancing).

Reasonable value is 10 ms delay per 1% CPU or (WAN/external) network bandwidth usage, with delays starting only after 25% usage.

This feature MAY be implemented in quality "Enterprise-grade" DHCP servers, but not required.

Acknowledgments

Based on the hard work of "Ralph Droms", DHCP [[RFC-2131](#)].

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