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DHCPv4 Vendor-specific Message
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Abstract

This document requests a vendor-specific DHCPv4 message assignment. This message can be used for vendor specific and experimental purposes.

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August 2009

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1. Introduction

DHCPv4 [[RFC2131](#)] specifies a mechanism for the assignment of addresses and configuration information to nodes. The protocol provides for 256 possible message codes, of which a small number are assigned ([\[DHCPv4Params\]](#)). Each of the assigned message codes have specific purposes. New message codes are assigned through IETF Standards Action.

There may be a need for vendors of DHCPv4 clients, relay agents, or servers to experiment with new capabilities that require new messages to be exchanged between these elements. Thus, this document defines the format for and requests that a new message code be reserved for vendor-specific and experimental purposes.

2. Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [[RFC2119](#)].

3. Vendor-specific Message

The vendor-specific message may be exchanged between clients, relay agents, and/or servers and allows multiple vendors to make use of the message for completely different and independent purposes.

Clients and servers MAY chose to support this message; those that do not, MUST discard the message. Relay agents SHOULD relay these messages as they would other DHCPv4 messages unless the relay agent understands the specific message and knows that the message was directed at it.

Applications using these messages MUST NOT assume that all DHCPv4

clients, relay agents, and servers support them and MUST use good networking practices when transmitting and retransmitting these messages. For some applications, it may be appropriate to use Vendor-Identifying Vendor Options [RFC3925] in a standard DHCPv4 exchange to negotiate whether the end-points support the vendor-specific message.

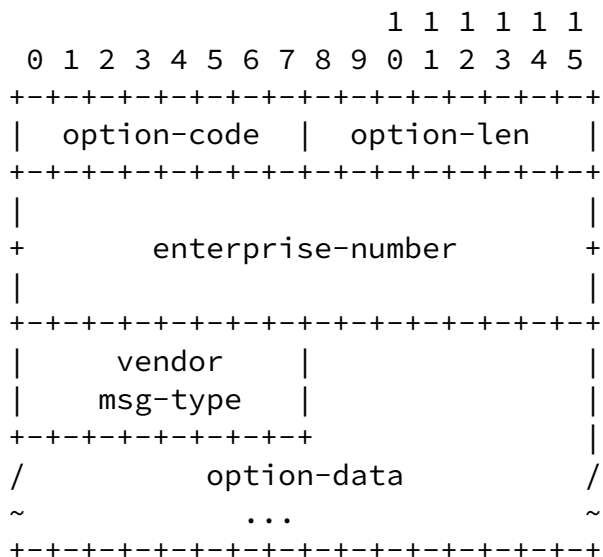
A vendor-specific message is constructed by placing the Vendor-Specific Message number (254) into the DHCP Message Type option [RFC2132] and including the Vendor Message Option defined below. A Vendor-Specific Message that does not contain the Vendor Message Option MUST be ignored. A Vendor Message Option in a DHCPv4 message

other than the Vendor-Specific Message MUST be ignored.

4. Vendor Message Option

The Vendor Message Option serves three purposes. It specifies the Enterprise Number to identify the vendor, it specifies the vendor's message type, and optionally contains vendor options related to the message.

The format of the Vendor Message Option is shown below:



option-code	OPTION_VENDOR_MESSAGE (TBD)
option-len	5 plus the length of the vendor-option-data.
enterprise-number	The vendor's 32-bit Enterprise Number as registered with [EID], in network octet order.
vendor-msg-type	The vendor's message-type. The values are defined by the vendor identified in the enterprise-number field and are not managed by IANA.
option-data	Vendor specific data (of length option-len minus 5 octets). This is optional.

The option-data field MUST be encoded as a sequence of code/length/value fields of identical format to the DHCP options field and is identical to the option-data field of Vendor-Identifying Vendor Options [[RFC3925](#)]. The option codes are defined by the vendor

identified in the enterprise-number field and are not managed by IANA. Option codes 0 and 255 have no pre-defined interpretation or format. Each of the encapsulated options is formatted as follows:

```

          1 1 1 1 1 1
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5
+-+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
| subopt-code | subopt-len |
+-+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
/      sub-option-data      /
~                ...                ~
+-+--+--+--+--+--+--+--+--+--+--+--+--+--+--+

```

subopt-code	The code for the encapsulated option.
subopt-len	An unsigned integer giving the length of the option-data field in this encapsulated option in octets.
sub-option-data	Data area for the encapsulated option.

Clients, relay agents, and/or servers supporting the Vendor Message

Option MUST support [[RFC3396](#)].

Note: Vendor-Identifying Vendor Options [[RFC3925](#)] are not used to convey the vendor identification (enterprise-number) for the vendor-specific message as the message may contain instances of those options for other reasons.

5. Security Considerations

The Security Considerations of [[RFC2131](#)] apply.

This new message does potentially open up new avenues of attacking clients, relay agents, or servers. The exact nature of these attacks will depend on what functions and capabilities the message exposes and are thus not possible to describe in this document. Clients and servers that have no use for these messages SHOULD discard them and thus the threat is no different than before this message was assigned.

Vendors using this new message should use the DHCPv4 security mechanisms (such as [[RFC3118](#)] as appropriate) and carefully consider the security implications of the functions and capabilities exposed.

6. IANA Considerations

IANA is requested to assign DHCPv4 Message type 254 to the Vendor-specific Message in the registry maintained in [[DHCPv4Params](#)]:

254 VENDOR-SPECIFIC

IANA is requested to assign a DHCPv4 option number to the Vendor Message Option in the registry maintained in [[DHCPv4Params](#)]:

TBD OPTION_VENDOR_MESSAGE

7. References

7.1. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [RFC2131] Droms, R., "Dynamic Host Configuration Protocol", [RFC 2131](#), March 1997.
- [EID] IANA, "Private Enterprise Numbers."
<http://www.iana.org/assignments/enterprise-numbers>".

7.2. Informative References

- [RFC2132] Alexander, S. and R. Droms, "DHCP Options and BOOTP Vendor Extensions", [RFC 2132](#), March 1997.
- [RFC3118] Droms, R. and W. Arbaugh, "Authentication for DHCP Messages", [RFC 3118](#), June 2001.
- [RFC3396] Lemon, T. and S. Cheshire, "Encoding Long Options in the Dynamic Host Configuration Protocol (DHCPv4)", [RFC 3396](#), November 2002.
- [RFC3925] Littlefield, J., "Vendor-Identifying Vendor Options for Dynamic Host Configuration Protocol version 4 (DHCPv4)", [RFC 3925](#), October 2004.
- [DHCPv4Params]
IANA, "Dynamic Host Configuration Protocol (DHCP) and Bootstrap Protocol (BOOTP) Parameters."
<http://www.iana.org/assignments/bootp-dhcp-parameters>".

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