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The DHCPv4 Relay Agent Identifier Suboption
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Abstract

This memo defines a new Relay Agent Identifier suboption for the Dynamic Host Configuration Protocol's (DHCP) Relay Agent Information option. The suboption carries a unique identifier configured or generated at the relay agent. The suboption allows a DHCP relay agent to include the unique identifier in the DHCP messages it sends.

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1. Introduction

The Dynamic Host Configuration Protocol for IPv4 (DHCPv4) [[RFC2131](#)] provides IP addresses and configuration information for IPv4 clients. It includes a relay agent capability, in which network elements receive broadcast messages from clients and forward them to DHCP servers as unicast messages. In many network environments, relay agents add information to the DHCP messages before forwarding them, using the Relay Agent Information option [[RFC3046](#)]. Servers that recognize the relay information option echo it back in their replies.

DHCP typically identifies clients based on information in their DHCP messages - such as the Client-Identifier option, or the value of the chaddr field. In some networks, however, the location of a client, its point of attachment to the network, is a more useful identifier. In factory-floor networks (commonly called 'Industrial' networks), for example, the role a device plays is often fixed and based on its location. Using manual address configuration is possible (and is common), but it would be beneficial if DHCP configuration could be applied to these networks.

One way to provide connection-based identifiers for industrial networks is to have the network elements acting as DHCP relay agents supply information that the DHCP server can use as a client identifier. A straightforward way to form identifier information is to combine something that is unique within the scope of the network element with something that uniquely identifies that network element. There are several possibilities, but to improve interoperability we describe a dedicated identifier that can be associated with the network element and conveyed in a consistent way.

This specification introduces a Relay Agent Identifier suboption for the Relay Information option. The Relay-Id suboption carries a sequence of octets that is intended to identify the relay agent uniquely within the administrative domain. The identifier may be administratively configured: in some networks it may be adequate to

assign strings such as "switch1" and "switch2". Alternatively, the identifier may be generated by the relay agent itself, and we specify an algorithm from [\[RFC3315\]](#) for this purpose.

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 [\[RFC2119\]](#).

DHCPv4 terminology is defined in [\[RFC2131\]](#), and the DHCPv4 Relay

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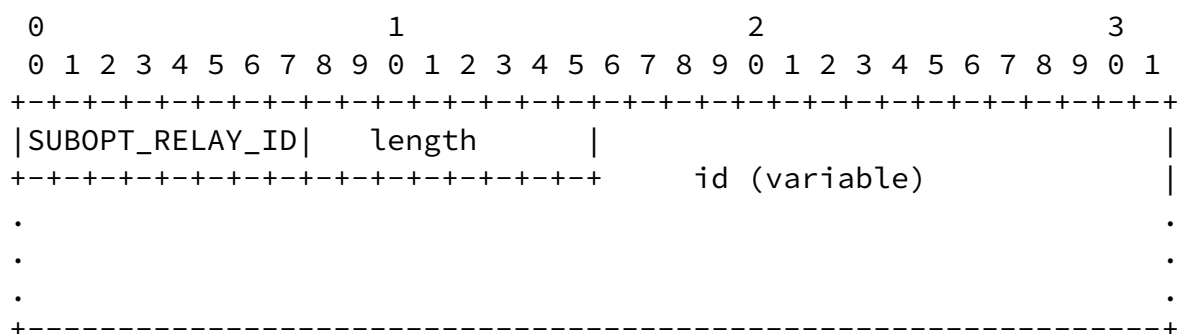
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Agent Information Option in [\[RFC3046\]](#). DUID terminology is in [\[RFC3315\]](#).

3. Suboption Format

Format of the Relay Agent Identifier suboption:



Where:

SUBOPT_RELAY_ID	[TBD]
length	the number of octets in the identifier; the minimum length is one.
id	'length' octets of identifier

4. Generating a Relay Identifier

As described in [Section 1](#), in some situations it may be useful for network devices to generate identifiers themselves. Relay agents who send the Relay Agent Identifier suboption using identifiers that are not administratively-configured MUST be generated following the procedures in the DUID section of [[RFC3315](#)]. Relay agents who use generated identifiers should make the generated value available to their administrators via their user-interface, through a log entry, or through some other mechanism.

5. Security Considerations

Security issues with the Relay Agent Information option and its use by servers in address assignment are discussed in [[RFC3046](#)] and [[RFC4030](#)]. Relay agents who send the Relay Agent Identifier suboption SHOULD use the Relay Agent Authentication suboption [[RFC4030](#)] to provide integrity protection.

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6. IANA Considerations

We request that IANA assign a new suboption code from the registry of DHCP Agent Sub-Option Codes maintained in <http://www.iana.org/assignments/bootp-dhcp-parameters>.

Relay Agent Identifier Suboption [TBD]

7. Normative References

- [RFC2131] Droms, R., "Dynamic Host Configuration Protocol", [RFC 2131](#), March 1997.
- [RFC3046] Patrick, M., "DHCP Relay Agent Information Option", [RFC 3046](#), January 2001.
- [RFC3315] Droms, R., Bound, J., Volz, B., Lemon, T., Perkins, C., and M. Carney, "Dynamic Host Configuration Protocol for IPv6 (DHCPv6)", [RFC 3315](#), July 2003.
- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate

Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.

[RFC4030] Stapp, M. and T. Lemon, "The Authentication Suboption for the Dynamic Host Configuration Protocol (DHCP) Relay Agent Option", [RFC 4030](#), March 2005.

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