

Dynamic Host Configuration Protocol for IPv6 (DHCPv6)
Relay Agent Remote-ID Option

Status of This Memo

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Abstract

This memo defines a new Relay Agent Remote-ID option for the Dynamic Host Configuration Protocol for IPv6 (DHCPv6). This option is the DHCPv6 equivalent for the Dynamic Host Configuration Protocol for IPv4 (DHCPv4) Relay Agent Option's Remote-ID suboption as specified in RFC 3046.

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1. Introduction

DHCPv6 [1] provides IP addresses and configuration information for IPv6 clients. It includes a relay agent capability, in which processes within the network infrastructure receive multicast messages from clients and relay them to DHCPv6 servers. In some network environments, it will be useful for the relay agent to add information to the DHCPv6 message before relaying it.

The information that relay agents supply can also be used in the server's decision making about the addresses, delegated prefixes [4], and configuration parameters that the client is to receive.

The memo specifies the DHCPv6 equivalent of the DHCPv4 Relay Agent option's Remote-ID suboption as specified in [2]. The motivation and usage scenarios are provided in [2].

2. Requirements 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 [3].

3. The Relay Agent Remote-ID Option

This option may be added by DHCPv6 relay agents that terminate switched or permanent circuits and have mechanisms to identify the remote host end of the circuit.

The format of the DHCPv6 Relay Agent Remote-ID option is shown below:

```

      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
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|               OPTION_REMOTE_ID               |               option-len               |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|               enterprise-number               |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
.
.               remote-id
.
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+

option-code          OPTION_REMOTE_ID (37)

option-len           4 + the length, in octets, of the remote-id
                      field. The minimum option-len is 5 octets.
```

enterprise-number The vendor's registered Enterprise Number as registered with IANA [5].

remote-id The opaque value for the remote-id.

The definition of the remote-id carried in this option is vendor specific. The vendor is indicated in the enterprise-number field. The remote-id field may be used to encode, for instance:

- o a "caller ID" telephone number for dial-up connection
- o a "user name" prompted for by a Remote Access Server
- o a remote caller ATM address
- o a "modem ID" of a cable data modem
- o the remote IP address of a point-to-point link
- o a remote X.25 address for X.25 connections
- o an interface or port identifier

Each vendor must ensure that the remote-id is unique for its enterprise-number, as the octet sequence of enterprise-number followed by remote-id must be globally unique. One way to achieve uniqueness might be to include the relay agent's DHCP Unique Identifier (DUID) [1] in the remote-id.

4. DHCPv6 Relay Agent Behavior

DHCPv6 relay agents may be configured to include a Remote-ID option in relayed (RELAY-FORW) DHCPv6 messages.

5. DHCPv6 Server Behavior

This option provides additional information to the DHCPv6 server. The DHCPv6 server, if it is configured to support this option, may use this information to select parameters specific to particular users, hosts, or subscriber modems. The combined enterprise-number and remote-id SHOULD be considered an opaque value, with policies based on exact string match only; that is, the remote-id field SHOULD NOT be internally parsed by the server.

There is no requirement that a server return this option and its data in a RELAY-REPLY message.

6. Security Considerations

See [1] section 21.1, on securing DHCPv6 messages sent between servers and relay agents, and section 23, on general DHCPv6 security considerations. [2] discusses how this information can be used to enhance trust in some environments.

Note that even if the DHCP server trusts the relay agent not to modify information provided in this option, the confidence in that information is no higher than the confidence that the relay agent has in the information it puts in the option. For example, in some protocols it may be possible for a DHCP client to spoof or otherwise choose port identifiers, caller ID information, or other information carried in this option. Sites should consider such possible spoofing and how likely it is in their environment when deciding what uses of this option are appropriate.

7. IANA Considerations

IANA has assigned the DHCPv6 option code 37 for the Relay Agent Remote-ID Option.

8. Acknowledgements

Thanks to Michael Patrick for [2], from which I've liberally borrowed text.

9. References

9.1. Normative References

- [1] Droms, R., Bound, J., Volz, B., Lemon, T., Perkins, C., and M. Carney, "Dynamic Host Configuration Protocol for IPv6 (DHCPv6)", RFC 3315, July 2003.
- [2] Patrick, M., "DHCP Relay Agent Information Option", RFC 3046, January 2001.
- [3] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

9.2. Informative References

- [4] Troan, O. and R. Droms, "IPv6 Prefix Options for Dynamic Host Configuration Protocol (DHCP) version 6", RFC 3633, December 2003.
- [5] IANA, "Private Enterprise Numbers",
<<http://www.iana.org/assignments/enterprise-numbers>>.

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