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


Status of This Memo

   This document specifies an Internet standards track protocol for the
   Internet community, and requests discussion and suggestions for
   improvements.  Please refer to the current edition of the "Internet
   Official Protocol Standards" (STD 1) for the standardization state
   and status of this protocol.  Distribution of this memo is unlimited.

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
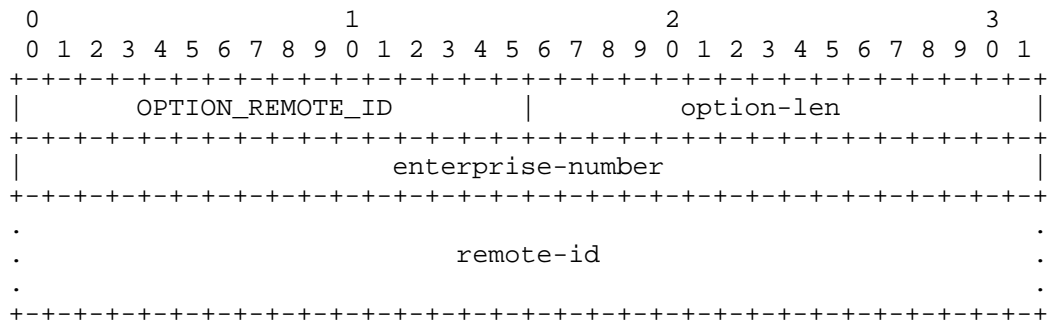   usage scenarios are provided in [2].

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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