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DSTM Options for DHCPv6
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Status of this Memo

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Abstract

The DSTM Global IPv4 Address option and the DSTM Tunnel Endpoint Option provide DSTM (Dual Stack Transition Mechanism) configuration

information to DHCPv6 hosts.

1. Introduction

This document describes two options for DHCPv6 [2] that provide information for hosts using the "Dual Stack Transition Mechanism" (DSTM) [3].

2. Requirements

The keywords MUST, MUST NOT, REQUIRED, SHALL, SHALL NOT, SHOULD, SHOULD NOT, RECOMMENDED, MAY, and OPTIONAL, when they appear in this document, are to be interpreted as described in RFC 2119 [1]

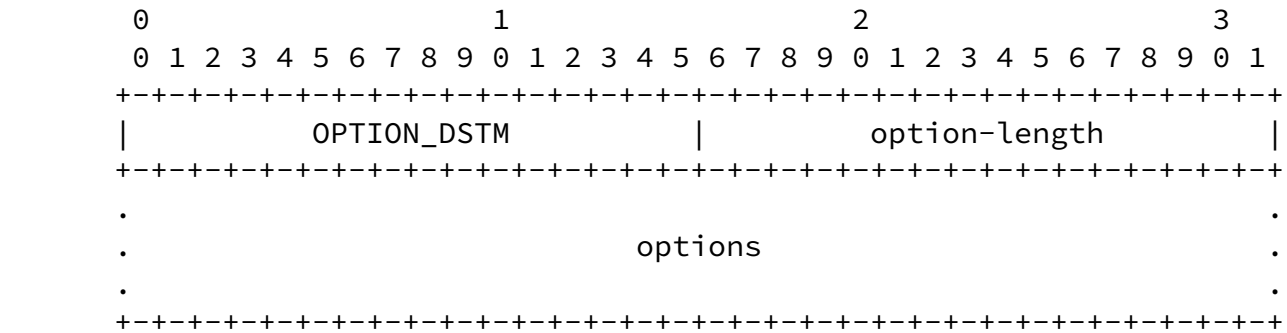
3. Terminology

This document uses terminology specific to IPv6 and DHCPv6 as defined in section "Terminology" of the DHCPv6 specification.

4. DSTM Global IPv4 Address option

The DSTM Global IPv4 Address option encapsulates other options that a DHCP client is to use for DSTM. The DSTM Global IPv4 Address option must include at least one Identity Association (IA) (see section "Identity Association" of the DHCPv6 specification [2]) that carries IPv4-mapped IPv6 addresses [4] as used in DSTM.

The format of the DSTM Global IPv4 Address option is:



option-code : OPTION_DSTM

option-length: Length of the 'options' field in octets

options : Options associated with DSTM

One Identity Association option (see section "Identity Association option" of the DHCPv6 specification) MUST be encapsulated within the options field in the DSTM Global IPv4 Address option. That IA option

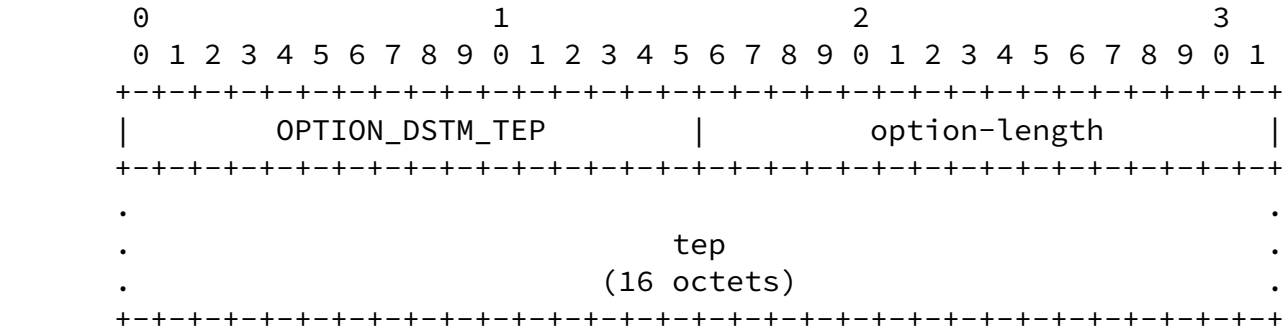
MUST be used only for IPv4-mapped IPv6 addresses.

A DSTM Tunnel End Point option (Section 5) MAY be encapsulated in the DSTM Global IPv4 Address option to specify one or more tunnel endpoints.

5. DSTM Tunnel Endpoint Option

The DSTM Tunnel Endpoint option carries an IP address that is to be used as a tunnel endpoint (TEP) to encapsulate IP datagrams within IP.

The format of the DSTM Tunnel Endpoint option is:



option-code: OPTION_DSTM_TEP

option-length: 16

tep: Tunnel endpoint

A DSTM Tunnel EndPoint Option MUST NOT be used except when encapsulated in a DSTM Global IPv4 Address option.

6. Appearance of these options

The DSTM Global IPv4 Address option MUST only appear in the options section of the following DHCP messages: Solicit, Advertise, Request, Confirm, Renew, Rebind, Decline, Release, Reply.

The DSTM Tunnel Endpoint option MUST only appear as an encapsulated option in a DSTM Global IPv4 Address option.

7. Security Considerations

The DSTM Global IPv4 Address option may be used by an intruder DHCP server to assign an invalid IPv4-mapped address to a DHCP client in a denial of service attack. The DSTM Tunnel Endpoint option may be used by an intruder DHCP server to configure a DHCP client with an

endpoint that would cause the client to route packets through an intruder system.

To avoid these security hazards, a DHCP client MUST use authenticated DHCP to confirm that it is exchanging the DSTM options with an authorized DHCP server.

8. IANA Considerations

IANA is requested to assign an option code to this option from the option-code space defined in section "DHCP Options" of the DHCPv6 specification [2].

References

[1] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[2] Bound, J., Carney, M., Perkins, C., Lemon, T., Volz, B. and R. Droms (ed.), "Dynamic Host Configuration Protocol for IPv6 (DHCPv6)", draft-ietf-dhc-dhcpv6-23 (work in progress), February 2002.

[3] Bound, J., "Dual Stack Transition Mechanism (DSTM)", draft-ietf-ngtrans-dstm-05 (work in progress), November 2001.

[4] Hinden, R. and S. Deering, "IP Version 6 Addressing Architecture", RFC 2373, July 1998.

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