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Assignment of an Ethertype for IPv6 with RFC 4944, RFC 6282 Header Encoding
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Abstract

When carried over layer 2 technologies such as Ethernet, IPv6 datagrams using datagram encoding as defined in RFC 4944 and RFC 6282 must be identified so the receiver can correctly interpret the encoded IPv6 datagram. This document requests the assignment of an Ethertype for that purpose.

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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1. Introduction

The IETF has defined a format for IPv6 [RFC2460] datagram encoding in [RFC4944] and [RFC6282] (6loENC). 6loENC as defined in RFC 4944 and RFC 6282 may be extended and modified by future IETF standards document. The intended layer 2 technology for IPv6 datagrams using 6loENC as originally defined is [IEEE.802.15.4_2011], which does not provide for a protocol switch in its layer 2 headers.

There is interest in carrying IPv6 datatgrams over layer 2 technologies that do include a protocol switch field:

- Usage of 6loENC in conjunction with IEEE 802.15.9 Multiplexed Data Service [IEEE802159], which provides the ability to perform upper layer protocol dispatch for IEEE 802.15.4 networks. Wi-SUN Alliance intends to use the 15.9 Multiplexed Data Information Element to dispatch 6loENC frames to upper stack layers. As specified in IEEE 802.15.9, dispatch of 6loENC frames will require an Ethertype be assigned for 6loENC.

- 6loENC will likely be needed for WiFi Alliance's HaLoW [HALOW] standard (low power operation in the 900 MHz band)

- Other layer 2 technologies such as Ethernet and debugging tools such as Wireshark require a unique protocol type field for 6loENC to properly interpret IPv6 datagrams that use 6loENC.

2. Request to IEEE for assignment of an Ethertype

When this document is published, the IETF will formally submit a request to IEEE for assignment of an Ethertype for IPv6 datagrams using 6loENC.

3. IANA Considerations

This memo includes no request to IANA.

4. Security Considerations

This document is intended only to request assignment of an Ethertype

for IPv6 datagrams using 6loENC. It has no incremental implications for security beyond those in the relevant protocols.

5. Normative References

[HALOW] Wi-Fi Alliance, "Wi-Fi HaLow", http://www.wi-fi.org/discover-wi-fi/wi-fi-halow .

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[IEEE802159] IEEE, "IEEE Draft Recommended Practice for Transort of Key Management Protocol (KMP) Datagrams", IEEE P802.15.9/D04, May 2015.

[RFC2460] Deering, S. and R. Hinden, "Internet Protocol, Version 6 (IPv6) Specification", RFC 2460, DOI 10.17487/RFC2460, December 1998, <http://www.rfc-editor.org/info/rfc2460>.

[RFC4944] Montenegro, G., Kushalnagar, N., Hui, J., and D. Culler, "Transmission of IPv6 Packets over IEEE 802.15.4 Networks", RFC 4944, DOI 10.17487/RFC4944, September 2007, <http://www.rfc-editor.org/info/rfc4944>.

[RFC6282] Hui, J., Ed. and P. Thubert, "Compression Format for IPv6 Datagrams over IEEE 802.15.4-Based Networks", RFC 6282, DOI 10.17487/RFC6282, September 2011, <http://www.rfc-editor.org/info/rfc6282>.

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