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**Transmission of IPv6 Packets over IEEE 802.11-OCB Networks
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Abstract

In this document the mapping of multicast IPv6 addresses to MAC addresses of 802.11-OCB is proposed.

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1. Introduction

In this document the mapping of link-scoped multicast IPv6 addresses to MAC addresses of 802.11-OCB is proposed.

IPv6 protocols often make use of IPv6 multicast addresses in the destination field of IPv6 headers. For example, an ICMPv6 link-scoped Neighbor Advertisement is sent to the IPv6 address ff02::1 denoted "all-nodes" address. When transmitting these packets on 802.11-OCB links it is necessary to map the IPv6 address to a MAC address.

The same mapping requirement applies to the link-scoped multicast addresses of other IPv6 protocols as well. In DHCPv6, the "All_DHCP_Servers" IPv6 multicast address ff02::1:2, and in OSPF the "All_SPF_Routers" IPv6 multicast address ff02::5, need to be mapped on a multicast MAC address.

Other than link-scope addressing, it may be possible to conceive other IPv6 multicast addresses for specific use in vehicular communication scenarios. For example, certain vehicle types (or road infrastructure equipment) in a zone can be denoted by an IPv6 multicast address: "all-yellow-taxis-in-street", or "all-uber-cars". This helps sending a message to these particular types of vehicles, instead of sending to all vehicles in that same street. The protocols SDP and LLDP could further be used in managing this as a service.

It may be possible to map parts of other-than-link-scope IPv6 multicast address (e.g. parts of a global-scope IPv6 multicast address) into parts of a 802.11-OCB MAC address. This may help certain IPv6 operations.

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 [RFC 2119](#) [[RFC2119](#)].

OCB - Outside the Context of a Basic-Service Set ID (BSSID).

802.11-OCB - IEEE 802.11-2012 text flagged by "dot11OCBActivated". This means: IEEE 802.11e for quality of service; 802.11j-2004 for half-clocked operations; and 802.11p for operation in the 5.9 GHz band and in mode OCB.

3. Maximum Transmission Unit

MTU is

4. Frame Format

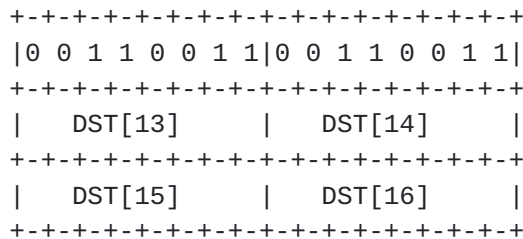
5. Stateless Autoconfiguration

6. Link-Local Addresses

7. Address Mapping -- Unicast

8. Address Mapping -- Multicast

An IPv6 packet with a multicast destination address DST, consisting of the sixteen octets DST[1] through DST[16], is transmitted to the IEEE 802.11-OCB MAC multicast address whose first two octets are the value 0x3333 and whose last four octets are the last four octets of DST.



A Group ID TBD of length 112bits may be requested from IANA; this Group ID signifies "All 802110CB Interfaces Address". Only the least 32 significant bits of this "All 802110CB Interfaces Address" will be mapped to and from a MAC multicast address.

Alternatively, instead of 0x3333 address other addresses reserved at IEEE can be considered. The Group MAC addresses reserved at IEEE are listed at <https://standards.ieee.org/develop/regauth/grpmac/public.html> (address browsed in July 2016).

9. Security Considerations

the security section

10. IANA Considerations

The Group ID for "All 802110CB Interfaces Address" is TBD.

11. Acknowledgements

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12. References

12.1. Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), DOI 10.17487/RFC2119, March 1997, <<http://www.rfc-editor.org/info/rfc2119>>.

12.2. Informative References

[ieee802.11p-2010]
"IEEE Std 802.11p(TM)-2010, IEEE Standard for Information Technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Specific requirements, Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications, Amendment 6: Wireless Access in Vehicular Environments; document freely available at URL <http://standards.ieee.org/getieee802/download/802.11p-2010.pdf> retrieved on September 20th, 2013."

[Appendix A](#). ChangeLog

The changes are listed in reverse chronological order, most recent changes appearing at the top of the list.

From -00.txt to -00.txt:

- o first version.

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