

Updates to the IPv6 Multicast Addressing Architecture

draft-boucadair-6man-multicast-addr-arch-update

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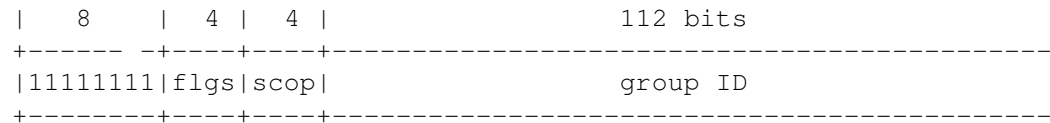
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Background & Scope

- Discussion of draft-ietf-mboned-64-multicast-address-format
- Need to clarify multicast addressing architecture to harmonize its use and ease future extensions
 - Associate a meaning with reserved bits
 - Provide clarifications for the use of flag bits
- Update various RFCs
 - RFC3306, RFC3956, RFC4607 and RFC4291

Reminder

- IPv6 multicast address architecture defined in RFC4291 is as follows



- ***“flgs is a set of 4 flags”***
- *T = 0 indicates a permanently-assigned (“well-known”) multicast address, assigned by the Internet Assigned Numbers Authority (IANA).*
- *T = 1 indicates a non-permanently-assigned (“transient” or “dynamically” assigned) multicast address.*
- *The P flag’s definition and usage can be found in [RFC3306].*
- *The R flag’s definition and usage can be found in [RFC3956].”*
- RFC3956 states also:
 - *“Instead of using flags bits (“FF70::/12”), one could have used the **leftmost reserved bits** instead (“FF3x:8000::/17”).”*

Flag Bits

- Some implementations and specification documents do not treat the flag bits as separate bits but tend to use their combined value as a 4-bit integer: e.g.,
 - The reading of [[RFC4607](#)] may lead to conclude that ff3x::/32 is the only allowed SSM IPv6 prefix block
 - [[RFC3956](#)] states only ff70::/12 applies to Embedded-RP. Particularly, implementations should not treat the fff0::/12 range as Embedded-RP
- **RECOMMENDATION:**
 - ***Implementations MUST treat flag bits as separate bits.***

IANA Assigned SSM Block

- Per [[RFC4607](#)], ff3x::4000:0001 through ff3x::7fff:fff is the block for IANA assignments (<http://www.iana.org/assignments/ipv6-multicast-addresses/ipv6-multicast-addresses.xml>)
- However, IANA assignments are permanent addresses and should not have the transient bit set. Quoting from [[RFC4607](#)]:
 - *“T = 1 indicates a non-permanently-assigned (“transient”) multicast address.”*

Addressing Architecture Update

- Bits 17-20 of a multicast address are defined in [[RFC3956](#)] and [[RFC3306](#)] as reserved bits
- **This I-D defines these bits as generic flag bits so that they apply to any multicast address**
 - Addresses are treated in a more uniform and generic way
 - A meaning can be associated to these bits in the future for different purposes, irrespective of the specific type of multicast address

Next Step

- Adopt as a WG item?