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R. Bonica
Juniper Networks
M. Cotton
PTI
B. Haberman
Johns Hopkins University
L. Vegoda
ICANN

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Updates to the Special-Purpose IP Address Registries

Abstract

This memo updates the IANA IPv4 and IPv6 Special-Purpose Address Registries to address issues raised by the definition of a "global" prefix. It also corrects several errors in registry entries to ensure the integrity of the IANA Special-Purpose Address Registries.

This memo updates RFC 6890.

Status of This Memo

This memo documents an Internet Best Current Practice.

This document is a product of the Internet Engineering Task Force (IETF). It represents the consensus of the IETF community. It has received public review and has been approved for publication by the Internet Engineering Steering Group (IESG). Further information on BCPs is available in Section 2 of RFC 7841.

Information about the current status of this document, any errata, and how to provide feedback on it may be obtained at http://www.rfc-editor.org/info/rfc8190.

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1. Introduction

In order to support new protocols and practices, the IETF occasionally reserves an address block for a special purpose. For example, [RFC1122] reserves an IPv4 address block (0.0.0.0/8) to represent the local (i.e., "this") network. Likewise, [RFC4291] reserves an IPv6 address block (fe80::/10) for link-local unicast addresses.

Several issues have been raised with the documentation of some of the special-purpose address blocks in [RFC6890]. Specifically, the definition of "global" provided in [RFC6890] was misleading as it slightly differed from the generally accepted definition of "global scope" (i.e., the ability to forward beyond the boundaries of an administrative domain, described as "global unicast" in the IPv6 addressing architecture [RFC4291]).

This memo updates the definition of "global" from [RFC6890] for the IPv4 and IPv6 Special-Purpose Address Registries, augments the fields contained within the registries in order to address the confusion raised by the definition of "global", and corrects some errors in some of the entries in the Special-Purpose Address Registries.

This memo updates [RFC6890].

2. IANA Considerations

2.1. Definition of Globally Reachable

[RFC6890] defined the term "global" without taking into consideration the multiple uses of the term. Specifically, IP addresses can be global in terms of allocation scope as well as global in terms of routing/reachability. To address this ambiguity, the use of the term "global" defined in [RFC6890] is replaced with "globally reachable". The following definition replaces the definition of "global" in the IANA Special-Purpose Address Registries:

- Globally Reachable - A boolean value indicating whether an IP datagram whose destination address is drawn from the allocated special-purpose address block is forwardable beyond a specified administrative domain.

The same relationship between the value of "Destination" and the values of "Forwardable" and "Global" described in [RFC6890] holds for "Globally Reachable". If the value of "Destination" is FALSE, the values of "Forwardable" and "Globally Reachable" must also be FALSE.

The "Global" columns in the IPv4 Special-Purpose Address Registry (https://www.iana.org/assignments/iana-ipv4-special-registry) and the IPv6 Special-Purpose Address Registry (https://www.iana.org/assignments/iana-ipv6-special-registry) have been renamed to "Globally Reachable".

2.2. Updates to the IPv4 Special-Purpose Address Registry

- Limited Broadcast prefix (255.255.255.255/32) - The Reserved-by-Protocol value has changed from False to True. This change was made to align the registry with reservation of the limited broadcast address with Section 7 of [RFC919].

2.3. Updates to the IPv6 Special-Purpose Address Registry

The following changes to the "IPv6 Special-Purpose Address Registry" involved the insertion of two new footnotes. These additions required that the footnotes be renumbered.

- TEREDO prefix (2001::/32) - The Globally Reachable value has changed from False to "N/A [2]". The [2] footnote now states:
  - See Section 5 of [RFC4380] for details.
- EID Space for LISP (2001:5::/32) - All footnotes have been incremented by 1.
- 6to4 (2002::/16) - All footnotes have been incremented by 1.
- Unique-Local (fc00::/7) - The Globally Reachable value has changed from False to "False [7]". The [7] footnote now states:
  - See [RFC4193] for more details on the routability of Unique-Local addresses. The Unique-Local prefix is drawn from the IPv6 Global Unicast Address range but is specified as not globally routed.

3. Security Considerations

This document does not raise any security issues beyond those discussed in [RFC6890].

4. References

4.1. Normative References

[RFC6890] Cotton, M., Vegoda, L., Bonica, R., Ed., and B. Haberman, "Special-Purpose IP Address Registries", BCP 153, RFC 6890, DOI 10.17487/RFC6890, April 2013, <http://www.rfc-editor.org/info/rfc6890>.

4.2. Informative References

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[RFC1122] Braden, R., Ed., "Requirements for Internet Hosts - Communication Layers", STD 3, RFC 1122, DOI 10.17487/RFC1122, October 1989, <http://www.rfc-editor.org/info/rfc1122>.

[RFC4193] Hinden, R. and B. Haberman, "Unique Local IPv6 Unicast Addresses", RFC 4193, DOI 10.17487/RFC4193, October 2005, <http://www.rfc-editor.org/info/rfc4193>.

[RFC4291] Hinden, R. and S. Deering, "IP Version 6 Addressing Architecture", RFC 4291, DOI 10.17487/RFC4291, February 2006, <http://www.rfc-editor.org/info/rfc4291>.

[RFC4380] Huitema, C., "Teredo: Tunneling IPv6 over UDP through Network Address Translations (NATs)", RFC 4380, DOI 10.17487/RFC4380, February 2006, <http://www.rfc-editor.org/info/rfc4380>.

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Authors' Addresses

Ronald Bonica
Juniper Networks

Email: rbonica@juniper.net

Michelle Cotton
PTI, an affiliate of ICANN
12025 Waterfront Drive, Suite 300
Los Angeles, CA 90094-2536
United States of America

Phone: +1-424-254-5300
Email: michelle.cotton@iana.org

Brian Haberman
Johns Hopkins University

Email: brian@innovationslab.net

Leo Vegoda
ICANN

Email: leo.vegoda@icann.org