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Clarification of IPv6 Address Assignment Policy

Abstract

This document specifies the approval process for changes to the IPv6 Address Space registry. It also updates RFC 7249.

About This Document

This note is to be removed before publishing as an RFC.

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1. Introduction

Internet Protocol Version 6 (IPv6) and its address space are currently defined by [[STD86](#)] and [[RFC4291](#)]. The management of the IPv6 address space was delegated to IANA by [[RFC1881](#)], some years before the current relationship between the IETF and IANA was formalized [[RFC2860](#)] and registry details were clarified [[RFC7020](#)], [[RFC7249](#)].

Occasionally, IPv6 address space allocations are performed outside the scope of routine allocations to regional address registries. For example, recently a substantial allocation was requested by an IETF document approved by the IESG [[I-D.ietf-6man-sids](#)].

The present document clarifies the status of RFC 1881 and the approval level needed for non-routine address allocations.

This clarification is necessary because RFC 1881, a joint publication of the IAB and IESG, is incorrectly listed in the RFC index at the time of writing as "legacy", whereas it remains current. Also the allocation policy in the IANA IPv6 Address Space registry [[IANA](#)] is shown as "IESG approval", whereas for major allocations a more stringent policy is appropriate.

2. Approval Level of IPv6 Address Allocations

Portions of the IPv6 address space are shown in the registry as "Reserved by IETF". This is the address space held in reserve for future use if ever the current 125-bit unicast space (2000::/3) is found inadequate or inappropriate.

RFC 1881 did not specify an allocation policy for this. At some point, IANA listed "IESG approval". This is defined in [[BCP26](#)] as a rather weak requirement ("Although there is no requirement that the request be documented in an RFC, the IESG has the discretion to request documents...") and as "a fall-back mechanism in the case where one of the other allowable approval mechanisms cannot be employed...".

For something as important as the majority of the spare IPv6 address space, this is clearly insufficient. The present document replaces this by the "IETF Review" process as defined by BCP 26. It is not considered necessary to require the stricter "Standards Action" policy, because there might be cases where opening up a new range of address space did not in fact require a new protocol standard.

This change requires an extension to section 2.3 of [[RFC7249](#)]. The phrase ', through "IETF Review" as defined in [[BCP26](#)]' is added to the end of the first paragraph.

It may be noted that the recent allocation for [[I-D.ietf-6man-sids](#)], which was processed as a working group document, did indeed follow the more stringent "IETF Review" process proposed by this document.

3. RFC Editor Considerations

The RFC Editor is requested to update the "Stream" information for [[RFC1881](#)] to "IAB" in place of "Legacy".

4. IANA Considerations

IANA is requested to update the "Registration Procedure(s)" section of the Internet Protocol Version 6 Address Space registry to show the policy as "IETF Review".

5. Security Considerations

Carefully reviewed address allocation mechanisms are necessary for any form of address-based security.

6. Acknowledgements

Useful comments were received from [TBD] ...

7. References

7.1. Normative References

- [BCP26] Best Current Practice 26, <<https://www.rfc-editor.org/info/bcp26>>.
At the time of writing, this BCP comprises the following: Cotton, M., Leiba, B., and T. Narten, "Guidelines for Writing an IANA Considerations Section in RFCs", BCP 26, RFC 8126, DOI 10.17487/RFC8126, June 2017, <<https://www.rfc-editor.org/info/rfc8126>>.
- [RFC4291] Hinden, R. and S. Deering, "IP Version 6 Addressing Architecture", RFC 4291, DOI 10.17487/RFC4291, February 2006, <<https://www.rfc-editor.org/rfc/rfc4291>>.
- [STD86] Internet Standard 86, <<https://www.rfc-editor.org/info/std86>>.
At the time of writing, this STD comprises the following: Deering, S. and R. Hinden, "Internet Protocol, Version 6 (IPv6) Specification", STD 86, RFC 8200, DOI 10.17487/RFC8200, July 2017, <<https://www.rfc-editor.org/info/rfc8200>>.

7.2. Informative References

- [I-D.ietf-6man-sids] Krishnan, S., "SRv6 Segment Identifiers in the IPv6 Addressing Architecture", Work in Progress, Internet-Draft, draft-ietf-6man-sids-06, 15 February 2024,

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- [RFC1881] IAB and IESG, "IPv6 Address Allocation Management", RFC 1881, DOI 10.17487/RFC1881, December 1995, <<https://www.rfc-editor.org/rfc/rfc1881>>.
- [RFC2860] Carpenter, B., Baker, F., and M. Roberts, "Memorandum of Understanding Concerning the Technical Work of the Internet Assigned Numbers Authority", RFC 2860, DOI 10.17487/RFC2860, June 2000, <<https://www.rfc-editor.org/rfc/rfc2860>>.
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- [RFC7249] Housley, R., "Internet Numbers Registries", RFC 7249, DOI 10.17487/RFC7249, May 2014, <<https://www.rfc-editor.org/rfc/rfc7249>>.

Appendix A. IPv6 Registry Title Inconsistencies

The authors would like to draw attention to inconsistencies in the titles for two of the IPv6 Address Registries: the "Internet Protocol Version 6 Address Space" registry and the "IPv6 Global Unicast Address Assignments" registry. These two titles are inconsistent with the titles for the "IANA IPv6 Special-Purpose Address Registry" and the similar IPv4 registries, the "IANA IPv4 Address Space Registry" and the "IANA IPv4 Special-Purpose Address Registry."

While these are mostly editorial issues, likely within IANA's control, confusion caused by these different titles could have easily contributed to not updating the Registry Procedures for the "Internet Protocol Version 6 Address Space" registry at the time of RFC 7249.

The "IANA IPv6 Address Space Registry" and the "IANA IPv6 Global Unicast Address Space Registry" are possibly more consistent titles for these registries.

Appendix B. Change Log [RFC Editor: please remove]

B.1. Draft-00

*Original version

B.2. Draft-01

*Added author

*Added citations

*Small update to RFC 7249

*Added appendix on registry names

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