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Reservation of Last Autonomous System (AS) Numbers
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Abstract

This document reserves two Autonomous System numbers (ASNs) at the end of the 16 bit and 32 bit ranges, described in this document as "Last ASNs" and provides guidance to implementers and operators on their use. This document updates [section 10 of RFC 1930](#).

Status of This Memo

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Last AS Reservation

May 2014

1. Introduction

IANA has reserved the last Autonomous System Number (ASN), 65535, of the 16 bit autonomous system number range for over a decade with the intention that it not be used by network operators running BGP [[RFC4271](#)]. Since the introduction of BGP Support for Four-Octet AS Number Space [[RFC6793](#)], IANA has also reserved the last ASN of the 32 bit autonomous system number range, 4294967295. This reservation has been documented in the IANA Autonomous System Numbers Registry [[IANA.AS](#)]. Although these "Last ASNs" border on Private Use ASN [[RFC6996](#)] ranges, they are not defined or reserved as Private Use ASNs by [[IANA.AS](#)]. This document describes the reasoning for reserving these Last ASNs and provides guidance both to operators and to implementers on their use.

2. Requirements Language

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](#)].

3. Reasons for Last ASNs Reservation

A subset of the BGP communities of ASN 65535, the last ASN of the 16 bit range, are reserved for use by Well-known communities as described in [[RFC1997](#)] and [[IANA.WK](#)]. Although this is not currently true of ASN 4294967295, if there is a future need for another Special Use ASN that is not designed to be globally routable, or the associated BGP communities of such an ASN, ASN 4294967295 could be a valid candidate for such purpose. This document does not prescribe any such Special Use to this ASN at the time of publication.

4. Operational Considerations

Operators SHOULD NOT use these Last ASNs for any other purpose or as Private Use ASNs. Operational use of these Last ASNs could have undesirable results. For example; use of AS 65535 as if it were a Private Use ASN, may result in inadvertent use of BGP Well-known Community values [[IANA.WK](#)], causing undesirable routing behavior.

These last ASNs MUST NOT be advertised to the global Internet within AS_PATH or AS4_PATH attributes. Operators SHOULD filter Last ASNs within the AS_PATH and AS4_PATH attributes.

5. Implementation Considerations

While these Last ASNs are reserved, they remain valid ASNs from a BGP protocol perspective. Therefore, implementations of BGP [[RFC4271](#)] SHOULD NOT treat the use of these Last ASNs as any type of protocol error. However, implementations MAY generate a local warning message indicating improper use of a reserved ASN.

Implementations that provide tools that filter Private Use ASNs within the AS_PATH and AS4_PATH attributes MAY also include these Last ASNs.

6. IANA Considerations

[Note to IANA, TO BE REMOVED BEFORE PUBLICATION: IANA please update the reservations for values 65535 and 4294967295 in the registries mentioned below to reference this document.]

IANA has reserved last Autonomous System number 65535 from the "16-bit Autonomous System Numbers" registry for the reasons described in this document.

IANA has also reserved last Autonomous System number 4294967295 from the "32-bit Autonomous System Numbers" registry for the reasons described in this document.

These reservations have been documented in the IANA Autonomous System Numbers Registry [[IANA.AS](#)] and the IANA Special-Purpose AS Numbers Registry [[IANA.SpecialAS](#)].

7. Security Considerations

This document does not introduce any additional security concerns in regards to usage of Last ASNs. Although the BGP protocol is designed to allow usage of these Last ASNs, security issues related to BGP implementation errors could be triggered by Last ASN usage.

8. References

8.1. Normative References

[IANA.AS] IANA, , "Autonomous System (AS) Numbers", May 2014, <<http://www.iana.org/assignments/as-numbers/>>.

[IANA.SpecialAS] IANA, , "Special-Purpose Autonomous System (AS) Numbers", May 2014, <<http://www.iana.org/assignments/iana-as-numbers-special-registry/>>.

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[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.

[RFC4271] Rekhter, Y., Li, T., and S. Hares, "A Border Gateway Protocol 4 (BGP-4)", [RFC 4271](#), January 2006.

[RFC6793] Vohra, Q. and E. Chen, "BGP Support for Four-Octet Autonomous System (AS) Number Space", [RFC 6793](#), December 2012.

8.2. Informative References

[IANA.WK] IANA, , "Border Gateway Protocol (BGP) Well-known Communities", May 2014, <<http://www.iana.org/assignments/bgp-well-known-communities/>>.

[RFC1997] Chandrasekeran, R., Traina, P., and T. Li, "BGP Communities Attribute", [RFC 1997](#), August 1996.

[RFC6996] Mitchell, J., "Autonomous System (AS) Reservation for Private Use", [BCP 6](#), [RFC 6996](#), July 2013.

Appendix A. Acknowledgments

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