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J. Mitchell
Microsoft Corporation

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Autonomous System (AS) Reservation for Private Use
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Abstract

This document describes the reservation of Autonomous System numbers (ASNs) that are for Private Use only and MUST NOT be advertised to the Internet, known as Private Use ASNs. This document enlarges the total space available for Private Use ASNs by documenting the reservation of a second, larger range and updates RFC 1930 by replacing Section 10.

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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This Internet-Draft will expire on October 14, 2013.

1. Introduction

The original IANA reservation of Autonomous System Numbers (ASNs) for Private Use was a block of 1023 ASNs. This was also documented by IETF in Section 10 of [RFC1930]. Since the time when that range was reserved, Border Gateway Protocol (BGP), documented in [RFC4271], has seen deployment in new application domains, such as datacenter networks, which require a larger Private Use AS Space.

Since the introduction of BGP Support for Four-octet AS Number Space [RFC6793], the total size of the ASN space has increased dramatically, and a larger subset of the space should be available to network operators to deploy in these Private Use cases. The existing range of Private Use ASNs is widely deployed and the ability to renumber this resource in existing networks cannot be coordinated given these ASNs by definition are not registered. Therefore this documents the existing Private Use ASN reservation, while also introducing a second, larger range that can also be utilized.

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. Private Use ASNs

To allow the continued growth of usage of the BGP protocol in new network applications that utilize Private Use ASNs, two ranges of ASNs are reserved by this document in Section 6. The first, which was previously defined in [RFC1930] out of the original 16-bit Autonomous System range, and a second, larger range out of the higher part of the Four-Octet AS Number Space [RFC6793].

4. Operational Considerations

If Private Use ASNs are used and prefixes are originated from these ASNs, which are destined to the Internet, Private Use ASNs MUST be removed from the AS_PATH before being advertised to the global Internet. Operators are cautioned to ensure any implementation specific features that recognize Private Use ASNs have been updated to recognize both ranges prior to making use of the newer, numerically higher range of Private Use ASNs. Some existing implementations that remove Private Use ASNs from the AS_PATH may fail to remove Private Use ASNs if the AS_PATH contains a mixture of

Private Use and Non-Private Use ASNs. If such implementations have not been updated to recognize the new range of ASNs in this document and a mix of old and new range Private Use ASNs exist in the path, these implementations may cease to remove any Private Use ASNs from the AS_PATH. Normal AS_PATH filtering may be used to prevent prefixes originating from Private Use ASNs from being advertised to the global Internet. Using AS_PATH filtering to filter the new range of Private Use ASNs on a network may also mitigate the leaking of Private Use ASNs to the global Internet in certain cases. These cases include the case where a network is reliant on AS_PATH manipulation features that have not been updated to recognize the new range as described above.

5. Acknowledgements

The author would like to acknowledge Christopher Morrow, Jason Schiller, and John Scudder for their advice on how to pursue this change. The author would also like to thank Brian Dickson, David Farmer, Jeffrey Haas, Nick Hilliard, Warren Kumari, and Jeff Wheeler for their comments and suggestions.

6. IANA Considerations

[Note to IANA, this paragraph to be removed upon publication: The IANA should update the "16-bit Autonomous System Numbers" registry to reference this RFC for the existing Private Use reservation. The end of the "32-bit Autonomous System Numbers" range will be reserved for Private Use, and a size of 94,967,295 (value to replace TBD1 below) corresponding to the range of 4200000000 (value to replace TBD2 below) to 4294967294 (value to replace TBD3 below). Text after this sentence should be published in the document.]

IANA has reserved, for Private Use, a contiguous block of 1023 Autonomous System numbers from the "16-bit Autonomous System Numbers" registry, namely 64512 - 65534 inclusive.

IANA has also reserved, for Private Use, a contiguous block of TBD1 Autonomous System numbers from the "32-bit Autonomous System Numbers" registry, namely TBD2 - TBD3 inclusive.

These reservations have been documented in the IANA Autonomous System Numbers Registry [IANA.AS].

7. Security Considerations

This document does not introduce any additional security concerns in regards to Private Use ASNs.

8. References

8.1. Normative References

[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.AS] IANA, , "Autonomous System (AS) Numbers", April 2013, <http://www.iana.org/assignments/as-numbers/>.

[RFC1930] Hawkinson, J. and T. Bates, "Guidelines for creation, selection, and registration of an Autonomous System (AS)", BCP 6, RFC 1930, March 1996.

Author's Address

Jon Mitchell
Microsoft Corporation
1 Microsoft Way
Redmond, WA 98052
USA

Email: Jon.Mitchell@microsoft.com