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Time to Remove Filters for Previously Unallocated IPv4 /8s

Abstract

It has been common for network administrators to filter IP traffic from and BGP prefixes of unallocated IPv4 address space. Now that there are no longer any unallocated IPv4 /8s, this practise is more complicated, fragile, and expensive. Network administrators are advised to remove filters based on the registration status of the address space.

This document explains why any remaining packet and BGP prefix filters for unallocated IPv4 /8s should now be removed on border routers and documents those IPv4 unicast prefixes that should not be routed across the public Internet.

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 5741.

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/rfc6441.

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1. Introduction

It has been common for network administrators to filter IP traffic from and BGP prefixes of unallocated IPv4 address space. Now that there are no longer any unallocated IPv4 /8s, this practise is more complicated, fragile, and expensive. Network administrators are advised to remove filters based on the registration status of the address space.

This document explains why any remaining packet and BGP prefix filters for unallocated IPv4 /8s should now be removed on border routers and documents those IPv4 unicast prefixes that should not be routed across the public Internet.

2. Terminology

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 BCP 14, RFC 2119 [RFC2119].

Martians [RFC1208] is a humorous term applied to packets that turn up unexpectedly on the wrong network because of bogus routing entries. It is also used as a name for a packet that has an altogether bogus (non-registered or ill-formed) Internet address. Bogons [RFC3871] are packets sourced from addresses that have not yet been allocated

by IANA or the Regional Internet Registries (RIRs), or addresses reserved for private or special use by RFCs [RFC5735]. Bogons are referred to as "Dark IP" in some circles.

3. Traffic Filtering Options

3.1. No Longer Filtering Based on Address Registration Status

Network administrators who implemented filters for unallocated IPv4 /8s did so in the knowledge that those /8s were not a legitimate source of traffic on the Internet and that there was a small number of bogon filters to implement. Now that there are no longer any unallocated unicast IPv4 /8s, there will be legitimate Internet traffic coming from all unicast /8s that are not reserved for special purposes in an RFC.

Removing packet and prefix filters based on the registration status of the IPv4 address is a simple approach that will avoid blocking legitimate Internet traffic. Network operators SHOULD remove both ingress and egress packet filters as well as BGP prefix filters for previously unallocated IPv4 /8s.

3.2. Continuing to Filter Traffic from Unallocated IPv4 Space

Some network administrators might want to continue filtering unallocated IPv4 addresses managed by the RIRs. This requires significantly more granular ingress filters and the highly dynamic nature of the RIRs' address pools means that filters need to be updated on a daily basis to avoid blocking legitimate incoming traffic.

4. Prefixes That Should Not be Routed across the Internet

Network operators may deploy filters that block traffic destined for Martian prefixes. Currently, the Martian prefix table is defined by [RFC5735] which reserves each Martian prefix for some specific, special use. If the Martian prefix table ever changes, that change will be documented in an RFC that either updates or obsoletes [RFC5735].

5. Security Considerations

The cessation of filters based on unallocated IPv4 /8 allocations is an evolutionary step towards reasonable security filters. While these filters are no longer necessary, and in fact harmful, this does not obviate the need to continue other security solutions. These other solutions are as necessary today as they ever were.

6. References

6.1. Normative References

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

[RFC5735] Cotton, M. and L. Vegoda, "Special Use IPv4 Addresses", BCP 153, RFC 5735, January 2010.

6.2. Informative References

[RFC1208] Jacobsen, O. and D. Lynch, "Glossary of networking terms", RFC 1208, March 1991.

[RFC3871] Jones, G., "Operational Security Requirements for Large Internet Service Provider (ISP) IP Network Infrastructure", RFC 3871, September 2004.

Appendix A. Acknowledgments

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