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Default EBGP Route Propagation Behavior Without Policies

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Abstract

This document defines the default behavior of a BGP speaker when there is no import or export policy associated with an External BGP session.

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].

Status of This Memo

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1. Introduction

There are BGP routing security issues that need to be addressed to make the Internet more stable. Route leaks [RFC7908] are part of the problem, but software defects or operator misconfigurations can contribute too. This document provides guidance to BGP [RFC4271] implementers to improve the default level of Internet routing security.

Many deployed BGP speakers send and accept any and all route announcements between their BGP neighbors by default. This practice dates back to the early days of the Internet, where operators were permissive in sending routing information to allow all networks to reach each other. As the Internet has become more densely interconnected, the risk of a misbehaving BGP speaker poses significant risks to Internet routing.

This specification intends to improve this situation by requiring the explicit configuration of a BGP import and export policy for any External BGP (EBGP) session such as customers, peers, or confederation boundaries for all enabled address families. When this solution is implemented, BGP speakers do not accept or send routes without policies configured on EBGP sessions.

2. Solution Requirements

The following requirements apply to the solution described in this document:

- Software MUST consider any routes ineligible for route selection (section 9.1.1 [RFC4271]), if no import policy was configured for the EBGP peer.

- Software MUST NOT advertise any routes to an EBGP peer, if no export policy was configured.

- Software SHOULD fall back to an "import nothing" and "export nothing" mode following failure of internal components, such as a policy engine.

- Software MUST operate in this mode by default.

- Software MAY provide a configuration option to disable this security capability.

3. Acknowledgments

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4. Security Considerations

This document addresses a basic routing security issue caused by permissive default routing policy configurations. Operators need implementers to address this problem with more secure defaults to mitigate collateral damage on Internet routing. Inadvertent or adversarial advertisements cause business impact that can be mitigated by a secure default behavior.

5. IANA Considerations

This document has no actions for IANA.

6. Contributors

The following people contributed to successful deployment of solution described in this document:

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7. References

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7.2. Informative References

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