BGP RPKI-Based Origin Validation on Export
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Abstract

It is useful for RPKI-based Origin Validation to classify and mark prefixes for all ingress, redistribution, and egress policies. For egress policy, it is important that the classification uses the effective origin AS of the processed route, which may specifically be altered by the commonly available knobs such as removing private ASs, confederation handling, and other modifications of the origin AS.

Requirements Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" are to be interpreted as described in [RFC2119] only when they appear in all upper case. They may also appear in lower or mixed case as English words, without normative meaning.

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 July 7, 2019.
1. Introduction

As the origin AS may be modified by outbound policy, policy semantics based on RPKI Origin Validation state MUST be able to be applied separately on distribution into BGP and on egress.

When applied to egress policy, the effective origin AS MUST be used to determine the Origin Validation state. The effective origin AS is that which will actually be the origin AS in the announcement. It might be affected by removal of private AS(s), confederation, AS migration, etc. If there are any AS_PATH modifications resulting in origin AS change, then these MUST be taken into account.

2. Suggested Reading

It is assumed that the reader understands BGP, [RFC4271], the RPKI, [RFC6480], Route Origin Authorizations (ROAs), [RFC6482], RPKI-based Prefix Validation, [RFC6811], and Origin Validation Clarifications, [RFC8481].

3. Egress Processing

BGP implementations supporting RPKI-based origin validation SHOULD provide the same policy configuration primitives for decisions based on validation state available for use in ingress, redistribution, and egress policies. When applied to egress policy, validation state MUST be determined using the effective origin AS of the route as it will (or would) be announced to the peer. The effective origin AS may differ from that of the route in the RIB due to commonly available knobs such as: removal of private ASs, AS path manipulation, confederation handling, etc.
Egress policy handling can provide more robust protection for outbound eBGP than relying solely on ingress (iBGP, eBGP, connected, static, etc.) redistribution being configured and working correctly — better support for the robustness principle.

4. Security Considerations

This document does not create security considerations beyond those of [RFC6811] and [RFC8481].

5. IANA Considerations

This document has no IANA Considerations.

6. References

6.1. Normative References


6.2. Informative References


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