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BGP Prefix Origin Validation State Extended Community
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Abstract

   As part of the origination AS validation process, it can be desirable
   to automatically consider the validation state of routes in the BGP
   decision process. The purpose of this document is to provide a
   specification for doing so. The document also defines a new BGP
   opaque extended community to carry the validation state inside an
   autonomous system to influence the decision process of the IBGP
   speakers.

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[1](#). Introduction

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to automatically consider the validation state of routes in the BGP
decision process. The purpose of this document is to provide a
specification for doing so. The document defines a new BGP opaque
extended community to carry the validation state inside an autonomous
system to influence the decision process of the IBGP speakers.

[1.1](#). 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](#)].

[2](#). Origin Validation State Extended Community

The origin validation state extended community is an opaque extended
community [[RFC4360](#)] with the following encoding:

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|      0x43     |     TBD      |             Reserved           |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                   Reserved                    |validationstate|
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

The value of the high-order octet of the extended Type Field is 0x43,
which indicates it is non-transitive. The value of the low-order
octet of the extended type field as assigned by IANA is 0x00. The
last octet of the extended community encodes the route's validation
state [RFC6811]. It can assume the following values:

```
+-------+-----------------------------+
| Value | Meaning                     |
+-------+-----------------------------+
|   0   | Lookup result = "valid"     |
|   1   | Lookup result = "not found" |
|   2   | Lookup result = "invalid"   |
+-------+-----------------------------+
```

If the router is configured to support the extensions defined in this
draft, it SHOULD attach the origin validation state extended
community to BGP UPDATE messages sent to IBGP peers by mapping the
computed validation state in the last octet of the extended
community. Similarly on the receiving IBGP speakers, the validation
state of an IBGP route SHOULD be derived.

An implementation SHOULD NOT send more than one instance of the
origin validation state extended community. However, if more than
one instance is received, an implementation MUST disregard all
instances other than the one with the numerically-greatest value. If
the value received is greater than the largest specified value (2),
the implementation MUST apply a strategy similar to attribute discard
[RFC7606] by discarding the erroneous community and logging the error
for further analysis.

By default, implementations SHOULD drop the origin validation state
extended community if received from an EBGP peer, without further
processing it. However an implementation MAY be configured to accept
the community when warranted, for example when the EBGP session is to
a neighbor AS under control of the same administration. Similarly,
an implementation SHOULD NOT send the community to EBGP peers but MAY
be configured to do so if warranted.

3. Deployment Considerations

In deployment scenarios where not all the speakers in an autonomous
system are upgraded to support the extensions defined in this
document, it is necessary to define policies that match on the origin
validation extended community and set another BGP attribute [RFC6811]
that influences the best path selection the same way as what would
have been enabled by an implementation of this extension.

4. Acknowledgements

The authors would like to acknowledge the valuable review and
suggestions from Wesley George, Roque Gagliano and Bruno Decraene on
this document.

5. IANA Considerations

IANA has assigned a value 0x00 from the "BGP Opaque Extended
Community" type registry in the non-transitive range, which is called
"BGP Origin Validation State Extended Community".

6. Security Considerations

This document introduces no new security concerns beyond what is
described in [RFC6811].

7. Normative References

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