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Expiration Date: September 2009   Daniel Tappan
Intended Status: Proposed Standard

Four-octet AS Specific BGP Extended Community

draft-ietf-l3vpn-as4octet-ext-community-03.txt

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Abstract

    This document defines a new type of a BGP extended community - four-
    octet AS specific extended community. This community allows to carry
    4 octet autonomous system numbers.

Specification of Requirements

    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].

1. Introduction

    This document defines a new type of BGP extended community
    ([RFC4360]) - four-octet AS specific extended community. This type of
    extended community is similar to the two-octet AS specific extended
    community, except that it can carry a four octets autonomous system
    number.

2. Four-octet AS specific extended community

    This is an extended type with Type Field comprising of 2 octets and
    Value Field comprising of 6 octets.


```
    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
   +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
   | 0x02 or 0x42  |   Sub-Type    |      Global Administrator     :
   +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
   : Global Administrator (cont.)  |     Local Administrator       |
   +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

The value of the high-order octet of this extended type is either
0x02 (for transitive communities) or 0x42 (for non-transitive commu-
nities). The low-order octet of this extended type is used to

indicate sub-types.

The Value Field consists of two sub-fields:

   Global Administrator sub-field: 4 octets

      This sub-field contains a 4-octets Autonomous System number
      assigned by IANA.

   Local Administrator sub-field: 2 octets

      The organization identified by Autonomous System number in the
      Global Administrator sub-field, can encode any information in
      this sub-field. The format and meaning of the value encoded in
      this sub-field should be defined by the sub-type of the commu-
      nity.

3. Considerations for two-octet Autonomous Systems

   As per [RFC4893], a two-octet Autonomous System number can be con-
   verted into a 4-octet Autonomous System number by setting the two
   high-order octets of the 4-octet field to zero.

   As a consequence, at least in principle an autonomous system that
   uses a two-octet Autonomous System number could use either two-octet
   or four-octet AS specific extended communities. This is undesirable,
   as both communities would be treated as different, even if they had
   the same Sub-Type and Local Administrator values.

   Therefore, for backward compatibility with existing deployments, and
   to avoid inconsistencies between two-octet and four-octet specific
   extended communities, autonomous systems that use two-octet
   Autonomous System numbers SHOULD use two-octet AS specific extended
   communities rather than four-octet AS specific extended communities.

4. IANA Considerations

This document defines a class of extended communities called four-
octet AS specific extended community for which the IANA is to create
and maintain a registry entitled Four-octet AS Specific Extended Com-
munity. All the communities in this class are of extended Types.
Future assignment are to be made using the "First Come First Served"
policy defined in [RFC5226]. The Type values for the transitive com-
munities of the four-octet AS specific extended community class are
0x0200-0x02ff, and for the non-transitive communities of that class
are 0x4200-0x42ff. Assignments consist of a name and the value.

This document makes the following assignments for the four-octet AS
specific extended community:

```
    Name                                    Type Value
    ----                                    ----------
    four-octet AS specific Route Target      0x0202
    four-octet AS specific Route Origin      0x0203
```

5. Security Considerations

All the security considerations for BGP Extended Communities apply
here.

6. Acknowledgements

Thanks to Bruno Decraene for his contributions to this document.

7. Normative References

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

[RFC5226] Narten, T., Alvestrand, H., "Guidelines for Writing an IANA
Considerations Section in RFCs", RFC5226, May 2008.

[RFC4360] Srihari R. Sangli, Daniel Tappan, Yakov Rekhter, "BGP
Extended Communities Attribute", RFC 4360, February 2006.

[RFC4893] Vohra, Q., Chen, E., "BGP Support for Four-octet AS Number
Space", RFC 4893, May 2007.

8. Non-normative References

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