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Four-octet AS Specific BGP Extended Community

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Status of this Memo

IPR Disclosure Acknowledgement

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

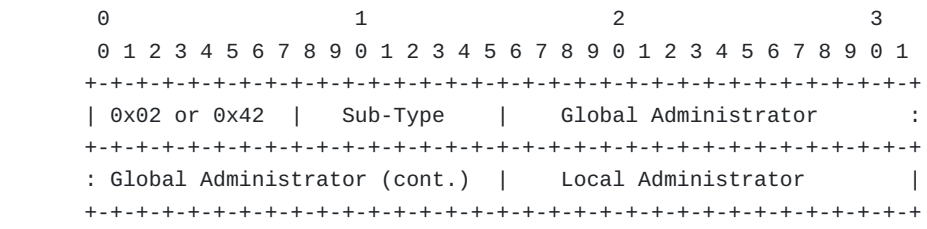
The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 [RFC2119].

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.



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

3. Considerations for two-octet Autonomous Systems

As per [RFC4893], a two-octet Autonomous System number can be converted 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 Community. 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 communities 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.

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9. Acknowledgements

Thanks to Bruno Decraene for his contributions to this document.

10. 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.

11. Non-normative References

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