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Assigned BGP extended communities
draft-ietf-idr-reserved-extended-communities-01

Abstract

This document defines two IANA registries in order to assign transitive and non-transitive extended communities from. These are similar to the existing well-known BGP communities defined in RFC 1997 but provide an easier control of inter-AS community advertisement as a community could be chosen as transitive or non-transitive across ASes.

For that purpose, this document defines the use of the reserved AS number 0 for the transitive and non-transitive generic four-octet AS specific extended community types.

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

[\[RFC1997\]](#) defines the BGP community attribute and some BGP well-known communities whose meaning SHALL be understood by all compliant implementations. New communities can be registered in the IANA "BGP Well-known Communities" registry but it can't be assumed anymore that they will be known by all BGP implementations. Implementations or BGP policies which recognize them will behave as specified. Implementations which do not recognize those new reserved communities will propagate them from BGP neighbor to BGP neighbor and from AS to AS with an unlimited scope.

There is currently no agreed way to register a non transitive well-known community:

On one hand, [\[RFC1997\]](#) defines BGP Well-known communities with no structure to set their transitivity across ASes. Without structure, communities can only be filtered by explicitly enumerating all community values that will be denied or allowed to BGP speakers in neighboring ASes. This is not satisfactory as this would require upgrading all border routers to understand this community before its first usage.

On the other hand, [\[RFC4360\]](#) defines the BGP extended community attribute with a structure including a type and a transitive bit "T". This transitive bit, when set, allows to restrict the scope of the community within an AS. But there is no IANA registry to allocate one well-known extended community. [\[RFC4360\]](#) defines IANA registries to allocate BGP Extended Communities types. Each type is able to encode 2^{48} or 2^{56} values depending on the type being extended or regular. Therefore, one needing to reserve a single non-transitive extended community would need to reserve an extended subtype which represents 2^{48} communities, while a single value is used. This would both waste the resources and disable the ability to define global policies on reserved communities, such as to accept them or to filter them out.

To address this limitation, this document defines two IANA registries in order to allow the registration of transitive and non-transitive extended communities. These are similar to the existing Well-known BGP communities defined in [\[RFC1997\]](#) but provides a control on inter-AS community advertisement as a community could be chosen as transitive or non-transitive across ASes.

2. Assigned extended communities

[\[I-D.ietf-idr-as4octet-extcomm-generic-subtype\]](#) defines a generic subtype for the four-octet AS specific extended community. The value of

the four-octets Global Administrator sub-field contains a four-octet Autonomous System number. The value of their two-octet Local Administrator sub-field has semantics defined by the Autonomous System set in the Global Administrator sub-field.

This document updates [\[I-D.ietf-idr-as4octet-extcomm-generic-subtype\]](#) and defines the use of the Local Administrator sub-field when the AS number encoded in the Global Administrator sub-field has the reserved value 0.

When the AS number encoded in the Global Administrator sub-field has the reserved value 0, the communities have global significance. The lists of those communities are maintained by the IANA in the registries "Assigned transitive extended communities" for the "transitive generic four-octet AS specific" extended community type and "Assigned non-transitive extended communities" for the "non-transitive generic four-octet AS specific" extended community type.

Note that this use of the reserved AS number 0 in the AS field of the communities is similar to the one defined by [\[RFC1997\]](#) for the BGP Well-Known communities.

[3. IANA Considerations](#)

The IANA is requested to create and maintain a registry entitled "Assigned transitive extended communities" with the following registration procedure:

Registry Name: Assigned transitive extended communities

Range	Registration Procedures
-----	-----
0x0000-8000	First Come First Served
0x8001-FFFF	Standards Action/Early IANA Allocation

The IANA is requested to create and maintain a registry entitled "Assigned non-transitive extended communities" with the following registration procedure:

Registry Name: Assigned non-transitive extended communities

Range	Registration Procedures
-----	-----
0x0000-8000	First Come First Served
0x8001-FFFF	Standards Action/Early IANA Allocation

An application may need both a transitive and a non-transitive community and it may be beneficial to have the same value for both communities. (Note that both extended communities will still be different as they will differ from their T bit). The IANA SHOULD try to accommodate such request to get both a transitive and non-transitive assigned community with the same value for both.

[4. Security Considerations](#)

This document defines IANA actions. In itself, it has no impact on the security of the BGP protocol.

[5. References](#)

[RFC2119]	Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels" , BCP 14, RFC 2119, March 1997.
[RFC1997]	Chandrasekeran, R., Traina, P. and T. Li, "BGP Communities Attribute" , RFC 1997, August 1996.
[RFC5226]	Narten, T. and H. Alvestrand, " Guidelines for Writing an IANA Considerations Section in RFCs ", BCP 26, RFC 5226, May 2008.
[RFC4360]	Sangli, S., Tappan, D. and Y. Rekhter, " BGP Extended Communities Attribute ", RFC 4360, February 2006.
[I-D.ietf-idr-as4octet-extcomm-generic-subtype]	Rao, D, Mohapatra, P and J Haas, " Generic Subtype for BGP Four-octet AS specific extended community ", Internet-Draft draft-ietf-idr-as4octet-extcomm-generic-subtype-04, July 2011.

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