

## AS-wide Unique BGP Identifier for BGP-4

[draft-ietf-idr-bgp-identifier-02.txt](#)

### **1. Status of this Memo**

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### **2. Abstract**

To accommodate situations where the current requirements for the BGP Identifier are not met, this document relaxes the definition of the BGP Identifier to be a 4-octet unsigned, non-zero integer, and relaxes the "uniqueness" requirement so that only AS-wide uniqueness of the BGP Identifiers is required. These revisions to the base BGP specification do not introduce any backward compatibility issue.

### **3. Introduction**

Currently the BGP Identifier of a BGP speaker is specified as a valid IPv4 host address assigned to the BGP speaker [[BGP-4](#)]. In addition, the deployed BGP code requires that two BGP speakers be of distinct BGP Identifiers in order to establish a BGP connection.

To accommodate situations where the current requirements for the BGP Identifier are not met, this document relaxes the definition of the BGP Identifier to be a 4-octet unsigned, non-zero integer, and relaxes the "uniqueness" requirement so that only AS-wide uniqueness of the BGP Identifiers is required. These revisions to the base BGP specification do not introduce any backward compatibility issue.

### **4. Protocol Revisions**

The revisions to the base BGP specification [[BGP-4](#)] include the definition of the BGP Identifier and procedures for a BGP speaker that supports the AS-wide Unique BGP Identifier.

#### **4.1. Definition of the BGP Identifier**

For a BGP speaker that supports the AS-wide Unique BGP Identifier, the BGP Identifier is specified as the following:

The BGP Identifier is a 4-octet unsigned, non-zero integer that should be unique within an AS. The value of the BGP Identifier for a BGP speaker is determined on startup and is the same for every local interface and every BGP peer.

#### **4.2. Open Message Error Handling**

For a BGP speaker that supports the AS-wide Unique BGP Identifier, the OPEN message error handling related to the BGP Identifier is modified as follows:

If the BGP Identifier field of the OPEN message is zero, or if it is the same as the BGP Identifier of the local BGP speaker and the message is from an internal peer, then the Error Subcode is set to "Bad BGP Identifier".



### **4.3. Connection Collision Resolution**

For a BGP speaker that supports the AS-wide Unique BGP Identifier, the procedures for connection collision resolution are extended as follows to deal with the case in which the two BGP speakers share the same BGP Identifier (thus it is only applicable to an external peer):

If the BGP Identifiers of the peers involved in the connection collision are identical, then the connection initiated by the BGP speaker with the larger AS number is preserved.

This extension covers cases in which the four-octet AS numbers are involved [[BGP-4BYTE-AS](#)].

## **5. Remarks**

It is noted that a BGP Identifier allocated based on [[BGP-4](#)] fits the revised definition.

In case of BGP Confederation, the whole confederation is considered as one AS for the purpose of supporting the AS-wide Unique BGP Identifier.

A BGP speaker that supports the AS-wide Unique BGP Identifier can not share a BGP Identifier with its external neighbor until the remote BGP speaker is upgraded with software that supports the proposed revisions.

In addition to the OPEN message, the BGP Identifier is currently also used in the following areas:

- o In the AGGREGATOR attribute of a route where the combination of a BGP Identifier and an AS number uniquely identifies the BGP speaker that performs the route aggregation.
- o In the Route Reflection (in lieu of the Cluster-id) within an AS, where only the BGP Identifier of an internal neighbor may be propagated in the route reflection related attributes.
- o In the route selection, where the BGP Identifier is not used in comparing a route from an internal neighbor and a route from an external neighbor. In addition, routes from BGP speakers with identical BGP Identifiers have been dealt with (e.g., parallel BGP sessions between two BGP speakers).

Therefore it is concluded that the revisions proposed in this document do not introduce any backward compatibility issue with the



current usage of the BGP Identifier.

## **6. Security Considerations**

This extension to BGP does not change the underlying security issues.

## **7. Acknowledgments**

The authors would like to thank members of the IDR Working Group for discussions on the "IPv6-only Network" related issues that inspired this document.

## **8. References**

[BGP-4] Y. Rekhter, and T. Li, "A Border Gateway Protocol 4 (BGP-4)", [draft-ietf-idr-bgp4-20.txt](#), April 2003.

[BGP-4BYTE-AS] Q. Vohra, E. Chen, "BGP support for four-octet AS number space", Work in Progress, <[draft-ietf-idr-as4bytes-06.txt](#)>, December 2002.

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