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Filtering Adj-Rib-In and Adj-Rib-Out to BMP receivers
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Abstract

Filtering RIBs in BMP (BGP Monitoring Protocol) can be desirable for several use-cases like, for example, limiting the amount of data a collector station has to process or allow a sender to export only a certain afi/safi of interest. This document defines a light way to inform a collector station that a Adj-Rib-In / Adj-Rib-Out data feed is being filtered.

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1. Introduction

While RFC9069 [RFC9069] does define a light way to mark a Loc-Rib as filtered, there is no equivalent mechanism for Adj-Rib-In RFC7854 [RFC7854] and Adj-Rib-Out RFC8671 [RFC8671]. This can be easily addressed through the introduction of a Peer F Flag in the "BMP Peer Flags for Peer Types 0 through 2" registry.

2. Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP 14 RFC 2119 [RFC2119] RFC 8174 [RFC8174] when, and only when, they appear in all capitals, as shown here.

3. Motivation and use Cases

Marking that the (Adj-RIB-in, Adj-RIB-Out) BMP session is filtered can be informative to the rest of the system that they should not make decisions assuming that this stream is transmitting all the information about it.

BMP producers (routers) need to send RM updates per peer while meeting several requirements, such as minimizing CPU consumption, avoiding impact on key routing functions, and providing near real-

time updates to the collector. As network scale increases, satisfying these requirements becomes increasingly challenging. Therefore, any mechanism that enables data filtering is beneficial. On the BMP collector side, excessive data imposes costs on storage and processing. Reducing the volume of data limited to key points of interest (for example, edge peering), can help alleviate these costs.

4. Filtered RIB Flag

As a recap, a BMP session is regarded as carrying Adj-Rib-In by defining the Peer Type to 0, 1 or 2 values and setting the O flag to zero (0) in the BMP Peer Flags (for Peer Types 0 through 2) registry. Similarly, Adj-Rib-Out is set by defining the Peer Type to 0, 1 or 2 values and setting the O flag to one (1) in the BMP Peer Flags (for Peer Types 0 through 2) registry. Both Adj-Rib-In and Adj-Rib-Out can be further defined as Pre-Policy, setting the Peer L Flag to zero (0), or Post-Policy, setting the Peer L Flag to one (1).

For both Adj-Rib-In and Adj-Rib-Out, for both Pre-Policy and Post-Policy cases, a new Peer F Flag is defined in the "BMP Peer Flags for Peer Types 0 through 2" registry. If the RIB was filtered, the flag MUST be set to one (1).

In Stats messages, counts MUST reflect the filtered RIB numbers and not the original RIB ones.

Also should any characteristic of the filtering change, the sender MUST trigger a Peer Down then followed by a new Peer Up.

5. Operational Considerations

It is recommended that when filtering RIBs, the VRF/Table Name TLV - as defined in RFC9069 [RFC9069], TLV support for BMP Route Monitoring and Peer Down Messages [I-D.ietf-grow-bmp-tlv] and BMP Peer Up Namespace [I-D.ietf-grow-bmp-peer-up] - is specified to a meaningful string that can help discriminate the nature of filtering.

The VRF/Table Name TLV can be either set in the Peer Up message, so to implicitly apply to all NLRIs received by the peer, or set via a Group TLV in Route Monitoring messages, to explicitly apply to all NLRIs in the group. Going down the Peer Up model is certainly optimal on the wire and simplifies packing at the sender side; going down the Route Monitoring model, instead, allows the receiver side to operate non-contextually (ie. no need to look back at the Peer Up to make due associations).

6. Security Considerations

It is not believed that this document adds any additional security considerations.

7. IANA Considerations

This document asks IANA to add a new F Flag to the "BMP Peer Flags for Peer Types 0 through 2" registry. The recommended value for the registry is 4.

8. Normative References

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