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Definition for BMP Multiple Peer Header
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Abstract

This document proposes a format of multiple peer header for aggregating BMP messages. It can be used to compress multiple BMP messages with per-peer header into one aggregated BMP message, which could reduce the amount of reported BMP messages and reduce network overhead.

Status of this Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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This Internet-Draft will expire on October 27, 2026.

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1. Introduction

[RFC7854] defines the format of BMP messages including Initiation Message, Termination Message, Route Monitoring Message, Route Mirroring Message, Stats Reports Message, and Peer Down/Up Notification Message. Except Initiation and Termination Message, all other BMP messages contain a Per-Peer Header. For BMP messages that include a Per-Peer Header, referred to as BMP Per-Peer Message, a common format is defined as shown in Figure 1.

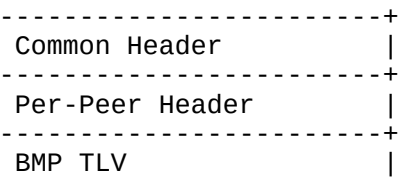

Figure 1: Common Format of BMP Per-Peer Message

Depending on the BMP message type in Common Header, the BMP TLV represents the corresponding BMP information.

For multiple BMP Per-Peer Messages, their BMP TLV may have both identical and differing parts. When transmitting BMP Per-Peer messages of the same type, these messages can be consolidated into a single message, retaining only one copy of the identical parts to reduce the message size, network overhead and improve overall network performance.

This document defines a new BMP message type, referred to as Multi-Peer Header Message. It can be used to compress multiple BMP

messages of same type, each with a per-peer header, into a single aggregated BMP message, which could reduce the amount of reported BMP messages and reduce network overhead.

2. Requirements Language

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 [RFC2119] [RFC8174] when, and only when, they appear in all capitals, as shown here.

3. Multi-Peer Header Definition

This section adds a new BMP message type for Multi-Peer Header, which is populated in the message type field of the Common Header.

Message Type = TBD: Multi-Peer Header, Recommended value 7.

4. Multi-Peer Header Message Format

This section defines the BMP Multi-Peer header message format, as shown in Figure 2.

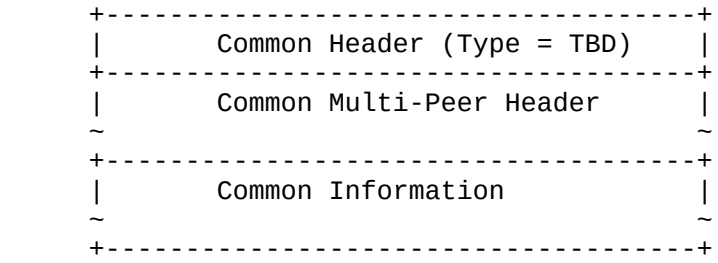

Figure 2: BMP Multi-Peer Header Message Format

In the BMP Multi-Peer header message format, the Common Header is the same as that defined in Section 4.1 of [RFC7854], the Common Multi-Peer Header carries the distinct Per-Peer Information of the corresponding BMP Per-Peer Message, and the Common Information comprises the identical part of the corresponding BMP Per-Peer Message.

The Common Multi-Peer Header format is defined in Section 5. The Common Information format is defined differently based on various Message Types in the Common Multi-Peer Header.

5. Common Multi-Peer Header Format

This section defines the format of the Common Multi-Peer Header in BMP Multi-Peer header message, as shown in Figure 3. The Multi-Peer Message Type maps to existing BMP message types that include a Per-Peer Header, as defined in [RFC7854] (such as Route Monitoring, Peer Down Notification and Peer Up Notification).

The Common Multi-Peer Header can be used to construct a BMP Multi-Peer Header message with various Multi-Peer Message Type. The Wild Card Per-Peer Header is defined below and is similar to the Per-Peer Header defined in Section 4.2 of [RFC7854]. The Per-Peer Information is the different part of the corresponding BMP Per-Peer Message.

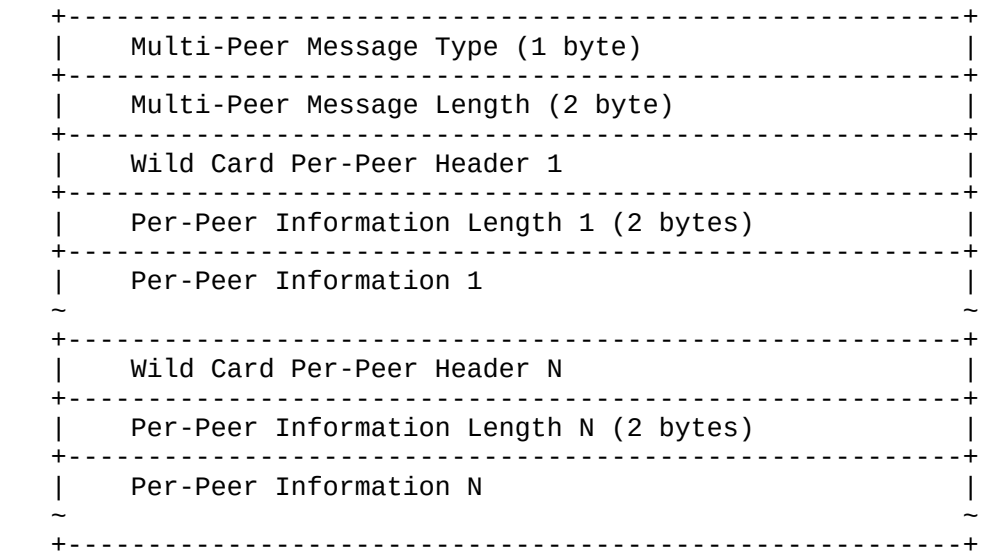

Figure 3: Common Multi-Peer Header Format

In the Common Multi-Peer Header format, The Multi-Peer Message Type definition is not included in this document, and it needs to be defined according to the specific application of BMP message type.

The Multi-Peer Message Length is the length of Common Multi-Peer Header in bytes (including all Wild Card Per-Peer Headers, Per-Peer Information Lengths, and Per-Peer Information).

The Per-Peer Information format can vary based on the various Multi-Peer Message Types. Each Wild Card Per-Peer Header could be followed by its unique/distinct Per-Peer Information corresponding the BMP Per-Peer Message. If no Per-Peer Information follows the Wild Card

Per-Peer Header, the corresponding Per-Peer Information Length MUST be set to 0.

This document defines an Wild Card Per-Peer Header, that could be used to apply to multiple peers, if desired. It is defined according to Per-Peer Header of [RFC7854], as shown in Figure 4.

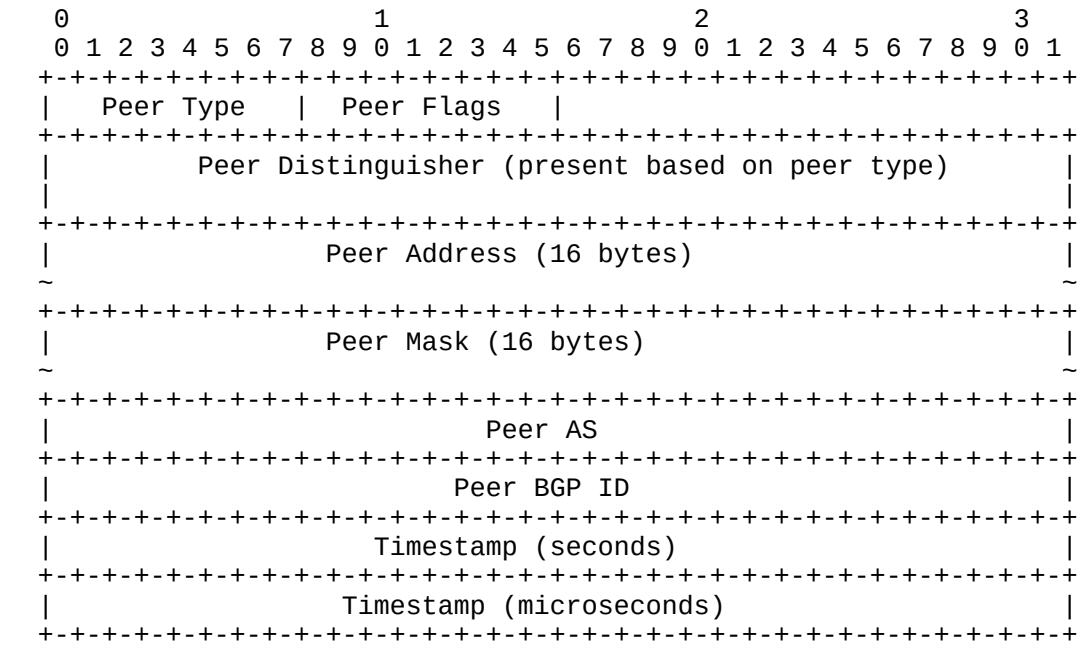

Figure 4: Wild Card Per-Peer Header Format

Compared with Per-Peer Header define in Section 4.2 of [RFC7854], the Peer Mask is added to indicate the mask of Peer Address.

* When Peer Mask is 32 for IPv4 and 128 for IPv6 - the Peer Address is used to indicate a specific peer (like the Peer Address of Per-Peer Header in RFC 7854).

* When Peer Mask is 0 and Peer Address is 0 - the Wild Card Peer Header applies to for all peers.

* Other non-zero values of Peer Mask - the Wild Card peer header applies to multiple peers matching ’peer address’ AND ’peer mask’ criteria.

6. Use Cases

TBD

7. Security Considerations

TBD.

8. IANA Considerations

This document requests that IANA assign a following new message type in BMP Message Types of the BMP parameters name space (https://www.iana.org/assignments/bmp-parameters/bmp-parameters.xhtml).

* Type = TBD: Multi-Peer Header

9. Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997, <https://www.rfc-editor.org/rfc/rfc2119>.

[RFC7854] Scudder, J., Ed., Fernando, R., and S. Stuart, "BGP Monitoring Protocol (BMP)", RFC 7854, DOI 10.17487/RFC7854, June 2016, <https://www.rfc-editor.org/info/rfc7854>.

[RFC8174] Leiba, B., "Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words", BCP 14, RFC 8174, DOI 10.17487/RFC8174, May 2017, <https://www.rfc-editor.org/info/rfc8174>.

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