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Storing BMP messages in MRT Format
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Abstract

This document extends the Multi-threaded Routing Toolkit (MRT) export format to support the storage of BMP messages.

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1. Introduction

The MRT record format [RFC6396] was developed to provide researchers and engineers a means to encapsulate, export, and archive routing protocol transactions and routing information base snapshots.

BMP [RFC7854] was developed to monitor BGP sessions, and also includes messages containing routing protocol transactions and Routing Information Base contents and changes. BMP [RFC7854] does not define a mechanism for exporting and archiving BMP messages. MRT can be a suitable format for this.

This document contains an optional extension to the MRT format [RFC6396] and defines additional MRT types to permit storage of BMP messages.

1.1. Stateless Message Parsing considerations

Previous BGP support in MRT [RFC6396] has required new sub-types to be introduced every time a new BGP capability is introduced that alters the wire format of the BGP packets. This meta-information signals to the parser how to decode the packet.

In the case of this proposed BMP support, the intention is to offload this meta-information to the in-protocol BMP implementations. The current implementations described are Stateless Parsing TLVs [I-D.ietf-grow-bmp-tlv] and Snapshot Messages [I-D.lucente-grow-bmp-offline].

It is expected that the producer of MRT files containing BMP data will ensure that these mechanisms are used to make the data in the file parseable.

As a result, this document does not define any MRT sub-types, BMP messages are encapsulated only using an outer MRT type to indicate that the enclosed messages are BMP messages

2. BMP Type

This document defines the following new MRT Types:

- * BMP
- * BMP_ET

These MRT types support the BMP protocol. They are used to encode the exchange of BMP messages. The _ET variant is for use with the Extended Timestamp MRT Header.

The format of the MRT Message field for the BMP types is as follows:

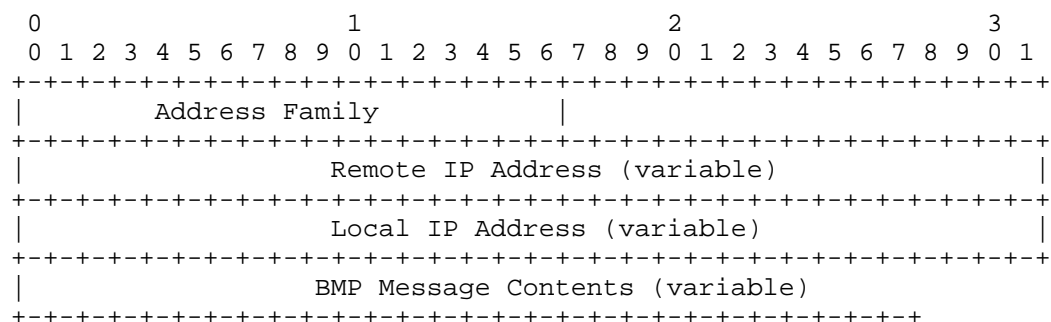


Figure 1

The Address Family indicates what types of addresses are in the subsequent address fields. At present, the following AFI Types are supported:

- 1 - AFI_IPv4
- 2 - AFI_IPv6

The Address Family value only applies to the IP addresses contained in the MRT header. The BMP type is otherwise transparent to the contents of the actual message that may contain any valid AFI/SAFI values.

Remote and Local IP addresses refer to the endpoints of the TCP connection carrying the BMP session, from the perspective of the BMP monitoring station that is recording these messages

3. IANA Considerations

This document requests that IANA assign Type codes to the MRT name space (<https://www.iana.org/assignments/mrt/mrt.xhtml>):

BMP = TBD1 (Section 2)

BMP_ET = TBD2 (Section 2)

In this draft document this is requested from the Specification Required range, this may be changed to the IETF Review range by a later version of this document.

4. Security Considerations

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

However, the security considerations of [RFC6396] and [RFC7854] are equally applicable to this document.

5. Normative References

[I-D.ietf-grow-bmp-tlv]

Lucente, P. and Y. Gu, "BMP v4: TLV Support for BGP Monitoring Protocol (BMP) Route Monitoring and Peer Down Messages", Work in Progress, Internet-Draft, draft-ietf-grow-bmp-tlv-19, 10 October 2025, <<https://datatracker.ietf.org/doc/html/draft-ietf-grow-bmp-tlv-19>>.

[I-D.lucente-grow-bmp-offline]

Hendriks, L., Lucente, P., Cardona, C., and C. Petrie, "BMP Snapshots", Work in Progress, Internet-Draft, draft-lucente-grow-bmp-offline-02, 20 October 2025, <<https://datatracker.ietf.org/doc/html/draft-lucente-grow-bmp-offline-02>>.

[RFC6396] Blunk, L., Karir, M., and C. Labovitz, "Multi-Threaded Routing Toolkit (MRT) Routing Information Export Format", RFC 6396, DOI 10.17487/RFC6396, October 2011, <<https://www.rfc-editor.org/info/rfc6396>>.

[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>>.

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