

Global Routing Operations
Internet-Draft
Updates: [7854](#) (if approved)
Intended status: Standards Track
Expires: November 6, 2020

P. Lucente
NTT
Y. Gu
Huawei
May 5, 2020

Support for Enterprise-specific TLVs in the BGP Monitoring Protocol
draft-lucente-grow-bmp-tlv-ebit-01

Abstract

Message types defined by the BGP Monitoring Protocol (BMP) do provision for optional trailing data in TLV - Type, Length, Value - format; however the space for Type value is unique and governed by IANA. To allow the usage of vendor-specific TLVs, a mechanism to define per-vendor Type values is required. With this document we want to introduce an Enterprise Bit, or E-bit, for such purpose.

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of [BCP 78](#) and [BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF). Note that other groups may also distribute working documents as Internet-Drafts. The list of current Internet-Drafts is at <https://datatracker.ietf.org/drafts/current/>.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

This Internet-Draft will expire on November 6, 2020.

Copyright Notice

Copyright (c) 2020 IETF Trust and the persons identified as the document authors. All rights reserved.

This document is subject to [BCP 78](#) and the IETF Trust's Legal Provisions Relating to IETF Documents (<https://trustee.ietf.org/license-info>) in effect on the date of publication of this document. Please review these documents carefully, as they describe your rights and restrictions with respect to this document. Code Components extracted from this document must include Simplified BSD License text as described in [Section 4.e](#) of

Internet-Draft

BMP TLV EBIT

May 2020

the Trust Legal Provisions and are provided without warranty as described in the Simplified BSD License.

Table of Contents

- [1.](#) Introduction [2](#)
- [2.](#) Terminology [2](#)
- [3.](#) TLV encoding [3](#)
 - [3.1.](#) IANA-registered TLV encoding [3](#)
 - [3.2.](#) Enterprise-specific TLV encoding [3](#)
 - [3.3.](#) TLV encoding remarks [4](#)
- [4.](#) Security Considerations [4](#)
- [5.](#) IANA Considerations [4](#)
- [6.](#) References [4](#)
 - [6.1.](#) Normative References [5](#)
 - [6.2.](#) Informative References [5](#)
- Acknowledgements [5](#)
- Authors' Addresses [6](#)

[1.](#) Introduction

The BGP Monitoring Protocol (BMP) is defined in [RFC 7854](#) [[RFC7854](#)]. Support for trailing TLV data is extended by TLV support for BMP Route Monitoring and Peer Down Messages [[I-D.ietf-grow-bmp-tlv](#)].

Vendors need the ability to define proprietary Information Elements, because, for example, they are delivering a pre-standards product, or the Information Element is in some way commercially sensitive.

This document re-defines the format of IANA-registered TLVs in a backward compatible manner with respect to previous documents and existing IANA allocations; it also defines the format for newly introduced enterprise-specific TLVs.

The concept of an E-bit, or Enterprise bit, is not new. For example such mechanism is defined in [Section 3.2 of \[RFC7011\]](#) for a very similar purpose.

[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.](#) TLV encoding

[3.1.](#) IANA-registered TLV encoding

Existing TLV encoding defined in [Section 4.4 of \[RFC7854\]](#) is reviewed as follows:

- o 1 bit to flag an enterprise-specific TLV set to zero. The TLV Type value must have been defined in IANA-BMP [[IANA-BMP](#)]
- o 15 bits of TLV Type,
- o 2 octets of TLV Length,
- o 0 or more octets of TLV Value.

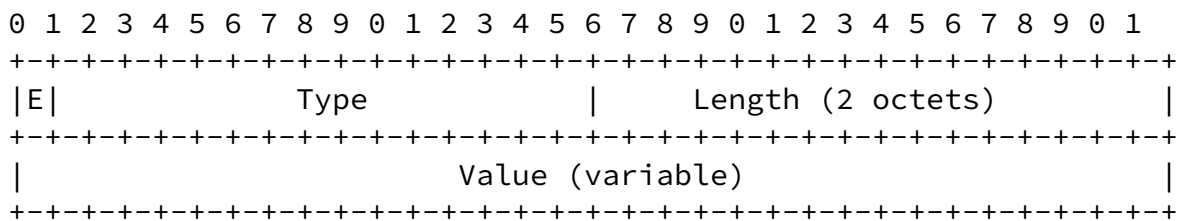


Figure 1

[3.2.](#) Enterprise-specific TLV encoding

Enterprise-specific TLV encoding is defined as follows:

- o 1 bit to flag an enterprise-specific TLV set to one
- o 15 bits of TLV Type,
- o 2 octets of TLV Length,

- o 4 octets of IANA enterprise number IANA-PEN [[IANA-PEN](#)]
- o 0 or more octets of TLV Value.

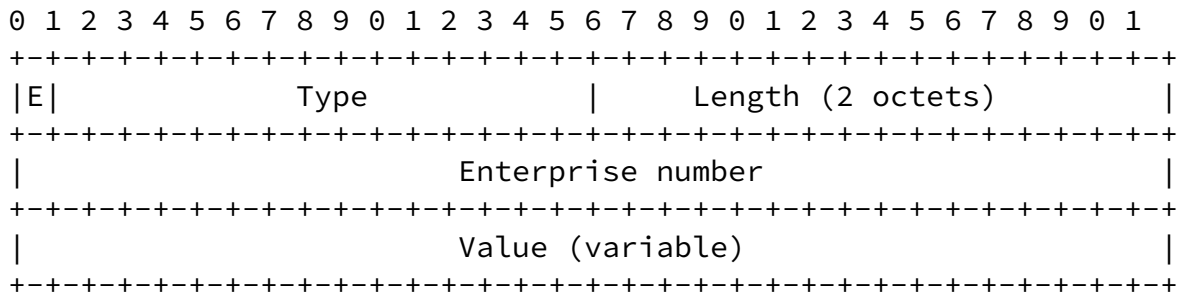


Figure 2

3.3. TLV encoding remarks

The encoding specified in this document applies to all existing BMP Message Types and their namespaces defined in [RFC 7854](#) [[RFC7854](#)], TLV support for BMP Route Monitoring and Peer Down Messages [[I-D.ietf-grow-bmp-tlv](#)] and BMP Peer Up Message Namespace [[I-D.ietf-grow-bmp-peer-up](#)]. While the proposed encoding is not per-se backward compatible, there is no existing IANA-allocated Type value that makes use of the most significant bit (which is being used in this document to define the E-bit).

Future BMP Message Types MUST make use of the TLV encoding defined in this document.

TLVs SHOULD be sorted by their code point. Multiple TLVs of the same type can be repeated as part of the same message and it is left to the specific use-cases whether all, any, the first or the last TLV

should be considered.

4. Security Considerations

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

5. IANA Considerations

The TLV Type values used by BMP are managed by IANA as are the Private Enterprise Numbers used by enterprise-specific Type values IANA-PEN [[IANA-PEN](#)]. This document makes no changes to these registries.

6. References

6.1. Normative References

[I-D.ietf-grow-bmp-peer-up]

Scudder, J., "BMP Peer Up Message Namespace", [draft-ietf-grow-bmp-peer-up-00](#) (work in progress), July 2019.

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

Lucente, P., Gu, Y., and H. Smit, "TLV support for BMP Route Monitoring and Peer Down Messages", [draft-ietf-grow-bmp-tlv-02](#) (work in progress), March 2020.

[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/info/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>>.

6.2. Informative References

[IANA-BMP]

IANA, "BGP Monitoring Protocol (BMP) Parameters", 2016, <<https://www.iana.org/assignments/bmp-parameters/bmp-parameters.xhtml>>.

[IANA-PEN]

IANA, "Private Enterprise Numbers", 1982, <<http://www.iana.org/assignments/enterprise-numbers/>>.

[RFC7011]

Claise, B., Ed., Trammell, B., Ed., and P. Aitken, "Specification of the IP Flow Information Export (IPFIX) Protocol for the Exchange of Flow Information", STD 77, [RFC 7011](#), DOI 10.17487/RFC7011, September 2013, <<https://www.rfc-editor.org/info/rfc7011>>.

Acknowledgements

TBD

Lucente & Gu

Expires November 6, 2020

[Page 5]

Internet-Draft

BMP TLV EBIT

May 2020

Authors' Addresses

Paolo Lucente
NTT
Siriusdreef 70-72
Hoofddorp, WT 2132
NL

Email: paolo@ntt.net

Yunan Gu
Huawei
Huawei Bld., No.156 Beiqing Rd.
Beijing 100095

China

Email: guyunan@huawei.com