

Network Working Group
Internet-Draft
Intended status: Standards Track
Expires: May 23, 2020

B. Cheng
MIT Lincoln Laboratory
L. Berger, Ed.
LabN Consulting, L.L.C.
November 20, 2019

Dynamic Link Exchange Protocol (DLEP) Latency Range Extension
draft-ietf-manet-dlep-latency-extension-05

Abstract

This document defines an extension to the Dynamic Link Exchange Protocol (DLEP) to provide the range of latency that can be experienced on a link.

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 May 23, 2020.

Copyright Notice

Copyright (c) 2019 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 the Trust Legal Provisions and are provided without warranty as described in the Simplified BSD License.

Table of Contents

1.	Introduction	2
1.1.	Key Words	2
2.	Extension Usage and Identification	2
3.	Latency Range Data Item	3
4.	Security Considerations	4
5.	IANA Considerations	4
5.1.	Extension Type Value	4
5.2.	Data Item Value	4
6.	Normative References	5
Appendix A.	Acknowledgments	5
	Authors' Addresses	5

[1.](#) Introduction

The Dynamic Link Exchange Protocol (DLEP) is defined in [\[RFC8175\]](#). It provides the exchange of link related control information between DLEP peers. DLEP peers are comprised of a modem and a router. DLEP defines a base set of mechanisms as well as support for possible extensions. This document defines one such extension.

The base DLEP specification includes the Latency metric which provides a single latency value on a link, which is implementation dependent. This document adds the ability to relay the minimum and maximum latency range seen on a link. The extension defined in this document is referred to as "Latency Range".

This document defines a new DLEP Extension Type Value in [Section 2](#) which is used to indicate the use of the extension, and one new DLEP Data Item in [Section 3](#).

[1.1.](#) Key Words

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.

[2.](#) Extension Usage and Identification

The use of the Latency Range Extension SHOULD be configurable. To indicate that the Latency Range Extension is to be used, an implementation MUST include the Latency Range Extension Type Value in the Extensions Supported Data Item. The Extensions Supported Data Item is sent and processed according to [\[RFC8175\]](#).

Note: the usage of the extension defined in this document does not impact processing associated with the Latency Data Item defined in [\[RFC8175\]](#).

The Latency Range Extension Type Value is TBA1, see [Section 5](#).

3. Latency Range Data Item

The Latency Range Data Item serves much the same purpose as the Latency Data Item defined in [\[RFC8175\]](#) with the addition of being able to communicate the latency range that can be experienced by traffic on a link. The Latency Range Data Item MUST be included in the Session Initialization Response Message, with default values to be used on a session-wide basis. The Latency Range Data Item also MAY be carried in any message where the Latency Data Item [\[RFC8175\]](#) is allowed and is carried as an additional data item. When present, the Latency Range Data Item MUST be processed according to the same rules as the Latency Data Item defined in [\[RFC8175\]](#).

The format of the Latency Range Data Item is:

```

      0                               1                               2                               3
      0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
| Data Item Type                               | Length                               |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|                               Maximum Latency                               :
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
:                               Maximum Latency                               |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|                               Minimum Latency                               :
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
:                               Minimum Latency                               |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+

```

Data Item Type: TBA2

Length: 16

Maximum Latency:

A 64-bit unsigned integer, representing the longest transmission delay, in microseconds, that a packet encounters as it is transmitted over the link.

Minimum Latency:

A 64-bit unsigned integer, representing the shortest transmission delay, in microseconds, that a packet can encounter as it is transmitted over the link.

4. Security Considerations

The extension introduces a new Data Item for DLEP. The extension does not inherently introduce any additional vulnerabilities above those documented in [RFC8175]. The approach taken to Security in that document applies equally when running the extension defined in this document.

5. IANA Considerations

This document requests the assignment of two values by IANA. All assignments are to registries defined by [RFC8175].

5.1. Extension Type Value

This document requests one new assignment to the DLEP Extensions Registry named "Extension Type Values" in the range with the "Specification Required" policy. The requested value is as follows:

+-----+-----+
Code Description
+-----+-----+
TBA1 Latency Range
+-----+-----+

Table 1: Requested Extension Type Value

5.2. Data Item Value

This document requests one new assignment to the DLEP Data Item Registry named "Data Item Type Values" in the range with the "Specification Required" policy. The requested values are as follows:

+-----+-----+
Type Code Description
+-----+-----+
TBA2 Latency Range
+-----+-----+

Table 2: Requested Data Item Values

6. 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/info/rfc2119>>.
- [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>>.
- [RFC8175] Ratliff, S., Jury, S., Satterwhite, D., Taylor, R., and B. Berry, "Dynamic Link Exchange Protocol (DLEP)", [RFC 8175](#), DOI 10.17487/RFC8175, June 2017, <<https://www.rfc-editor.org/info/rfc8175>>.

Appendix A. Acknowledgments

Helpful comments were received from members of the MANET working grouping, including Ronald in 't Velt, Henning Rogge, and Victoria Pritchard.

Authors' Addresses

Bow-Nan Cheng
MIT Lincoln Laboratory
Massachusetts Institute of Technology
244 Wood Street
Lexington, MA 02421-6426

Email: bcheng@ll.mit.edu

Lou Berger (editor)
LabN Consulting, L.L.C.

Email: lberger@labn.net

