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DLEP Latency Range Extension
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Abstract

This document defines an extension to the DLEP protocol to provide the range of latency that may be experienced on a link.

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1. Introduction

The Dynamic Link Event Protocol (DLEP) is defined in [I-D.ietf-manet-dlep]. 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 an average latency on a link. 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 Items 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, RFC 2119 [RFC2119].

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 [I-D.ietf-manet-dlep].

The Latency Range Extension Type Value is TBA1, see Section 5.

3. Latency Range Data Items

The Latency Range Data Item serves much the same purpose as the Latency Data Item defined in [I-D.ietf-manet-dlep] with the addition of being able to communicate the latency range that may be experienced by traffic on a link. The Latency Range Item MAY be carried in the same messages and MUST be processed according to the same rules as the Latency Range Data Item defined in [I-D.ietf-manet-dlep].

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 transmission longest delay, in microseconds, that a packet encounters as it is transmitted over the link.

Minimum Latency:

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

4. Security Considerations

The extension introduces a new mechanism for flow control between a router and modem using the DLEP protocol. The extension does not inherently introduce any additional threats above those documented in [I-D.ietf-manet-dlep]. 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 2 values by IANA. All assignments are to registries defined by [I-D.ietf-manet-dlep].

5.1. Extension Type Value

This document requests one new assignment to the DLEP Extensions Registry named "Extension Tyoe 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 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

[I-D.ietf-manet-dlep]

Ratliff, S., Jury, S., Satterwhite, D., Taylor, R., and (. (Unknown), "Dynamic Link Exchange Protocol (DLEP)", draft-ietf-manet-dlep-24 (work in progress), July 2016.

[RFC2119]

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

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