

# Packet Delivery Deadline Time in 6LoWPAN Routing Header

## draft-ietf-6lo-deadline-time-01

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# Overview

- Deadline-6LoRHE type for 6LoWPAN dispatch page 1
  - Carries Packet Delivery Deadline Time
  - Optional Packet Origination Time
- Enables delay-aware forwarding and scheduling decisions
- Operates on time-synchronized constrained networks
- Handles different time zones over heterogeneous networks

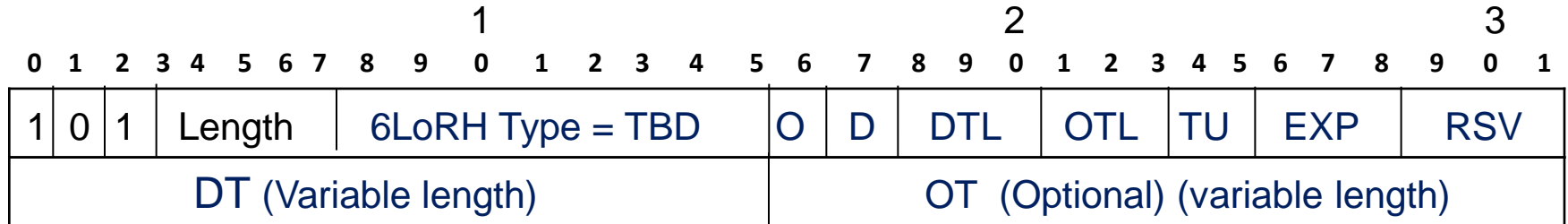
# Draft History

- ❑ **IETF 97** - Presented the first version of draft: <draft-lijo-6lo-expiration-time >
- ❑ **IETF 98** - 1<sup>st</sup> and 2<sup>nd</sup> revision
  - Included Origination Time (OT)
  - Provided header compression mechanism
- ❑ **IETF 99** - 3<sup>rd</sup> and 4<sup>th</sup> revision
  - Network ASN included as new Time Unit (TU) representation
  - Improved header compression mechanism
- ❑ **Implemented** the draft in OpenWSN platform for a 6tisch network; the code has been merged with OpenWSN
  - <https://github.com/openwsn-berkeley/openwsn-fw/tree/develop/openapps/uexpiration>
  - <https://github.com/openwsn-berkeley/openwsn-fw/pull/355>
- ❑ **IETF 100** - **Adopted as a WG Document** : <draft-ietf-6lo-deadline-time>

# Draft Updates

- Added references for **Time Synchronization mechanism / protocols**
- Updated the **iOAM draft reference** to <draft-ietf-ippm-ioam-data>
- Based on comments received, modified the usage of 'Drop' Flag from **SHOULD** to **MUST**
- Added text for describing the **kinds of delays** observed in a network

# Deadline-6LoRHE Format



<b>O</b> flag (1 bit)	Origination Time flag 1: Origination Time is present 0: Origination Time is absent
<b>D</b> flag (1 bit)	Drop flag 1: <b>MUST</b> drop the packet if the deadline time is elapsed 0: MAY ignore and forward
<b>DTL</b> (3 bits [bbb])	Length of DT field := [bbb]+1 000 : Length of DT is "1 octet" : 111 : Length of DT is "8 octets"
<b>OTL</b> (3 bits [bbb])	Length of OT field := [bbb]+1 000 : Length of OT is "1 octet" : 111 : Length of OT is "8 octets"

<b>TU</b> (2 bits)	Indicates the time units for DT and OT 00 : Time in microseconds 01 : Time in seconds <b>10 : Network ASN</b> 11 : Reserved
<b>EXP</b> (3 bits)	Multiplication factor (exponent of base 10)
<b>RSV</b> (3 bits)	Reserved

<b>DT</b> (Variable length)	Deadline Time value (8..64-bit)
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<b>OT</b> (Variable length)	Origination Time value (Optional) (8..64-bit)
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# Way Forward

Need more peer review and request for WG LC

## Comments and Questions

Thanks !!!