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RPL Mesh Header
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Abstract

This short draft provides a straw man for the RPL Mesh Header.

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[1.](#) Introduction

[I-D.thubert-6man-flow-label-for-rpl] defines a way to carry RPL information in a flow label. The present draft shows how to carry the same information in a RPL Mesh Header, in a slightly more efficient way.

[1.1.](#) Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC 2119](#) [[RFC2119](#)].

[2.](#) Idea

(Insert definitions from [[I-D.thubert-6man-flow-label-for-rpl](#)] here.)

Where [[I-D.thubert-6man-flow-label-for-rpl](#)] would carry the [[RFC6553](#)] information in a flow label:

```

      0                               1                               2
      0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3
      +---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
          | 0|R|F|  SenderRank   | RPLInstanceID |
          +---+---+---+---+---+---+---+---+---+---+---+---+---+

```

the RPL Mesh header carries it in a Mesh header, depending on whether Rank and Inst both fit into 4 bits (S=0) or not (S=1):

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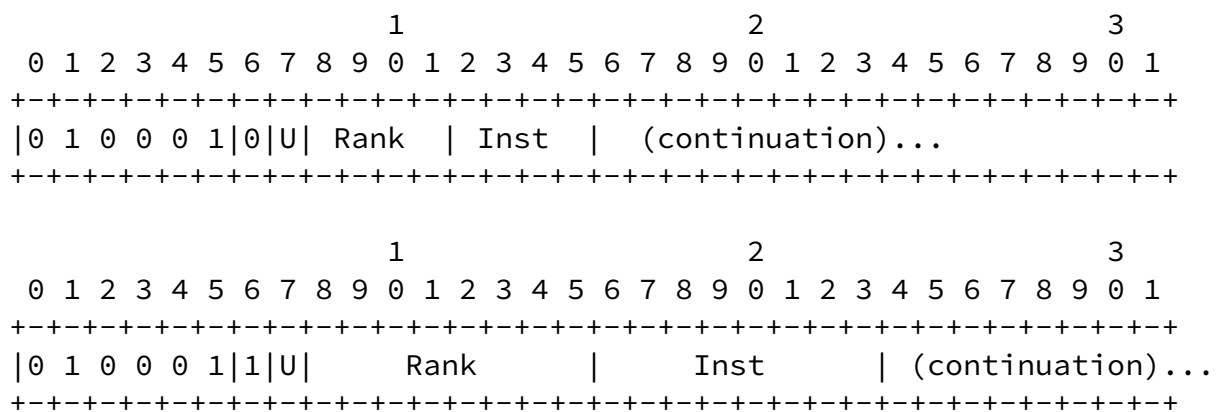


Figure 1: RPL Mesh Header: Short and Long Version

The U bit controls whether an [RFC6282] IPHC dispatch follows (U=0, Figure 2) or an [RFC4944] FRAG1 fragment header (U=1, Figure 3). In both cases, the first three bits of the dispatch are replaced by the 0, R, and F bits from [I-D.thubert-6man-flow-label-for-rpl].

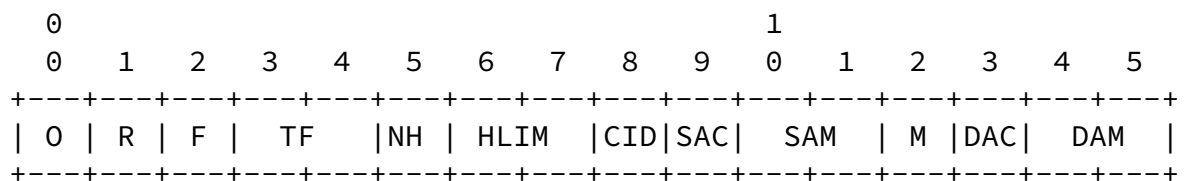


Figure 2: continuation for U=0

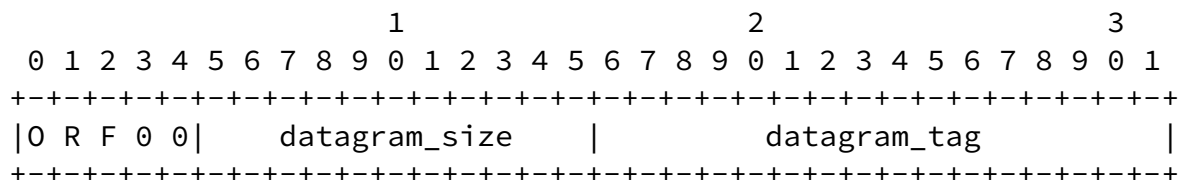


Figure 3: continuation for U=1

3. IANA considerations

This draft requests IANA to assign the following four dispatch types in the "IPv6 Low Power Personal Area Network Parameters" registry:

01 0001SU

[4.](#) Security considerations

The security considerations of [[RFC4944](#)], [[RFC6282](#)], and [[RFC6553](#)] apply.

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[5.](#) References

[5.1.](#) Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [RFC4944] Montenegro, G., Kushalnagar, N., Hui, J., and D. Culler, "Transmission of IPv6 Packets over IEEE 802.15.4 Networks", [RFC 4944](#), September 2007.
- [RFC6282] Hui, J. and P. Thubert, "Compression Format for IPv6 Datagrams over IEEE 802.15.4-Based Networks", [RFC 6282](#), September 2011.
- [RFC6553] Hui, J. and JP. Vasseur, "The Routing Protocol for Low-Power and Lossy Networks (RPL) Option for Carrying RPL Information in Data-Plane Datagrams", [RFC 6553](#), March 2012.

[5.2.](#) Informative References

- [I-D.thubert-6man-flow-label-for-rpl] Thubert, P., "The IPv6 Flow Label within a RPL domain", [draft-thubert-6man-flow-label-for-rpl-03](#) (work in progress), May 2014.

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