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RFC8287 Sub-TLV Length Clarification
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Abstract

RFC8287 defines the extensions to MPLS LSP Ping and Traceroute for Segment Routing IGP-Prefix and IGP-Adjacency Segment Identifier (SIDs) with an MPLS data plane. RFC8287 proposes 3 Target FEC Stack Sub-TLVs. While the standard defines the format and procedure to handle those Sub-TLVs, it does not sufficiently clarify how the length of the Segment ID Sub-TLVs should be computed to include in the Length field of the Sub-TLVs which may result in interoperability issues.

This document updates RFC8287 by clarifying the length of each Segment ID Sub-TLVs defined in RFC8287.

Status of This Memo

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1. Introduction

[RFC8287] defines the extensions to MPLS LSP Ping and Traceroute for Segment Routing IGP-Prefix and IGP-Adjacency Segment Identifier (SIDs) with an MPLS data plane. [RFC8287] proposes 3 Target FEC Stack Sub-TLVs. While the standard defines the format and procedure to handle those Sub-TLVs, it does not sufficiently clarify how the length of the Segment ID Sub-TLVs should be computed to include in the Length field of the Sub-TLVs which may result in interoperability issues.

This document updates [RFC8287] by clarifying the length of each Segment ID Sub-TLVs defined in [RFC8287].

2. Terminology

This document uses the terminologies defined in [RFC8402], [RFC8029], [RFC8287] and so the readers are expected to be familiar with the same.

3. Requirements notation

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 [RFC2119] [RFC8174] when, and only when, they appear in all capitals, as shown here.

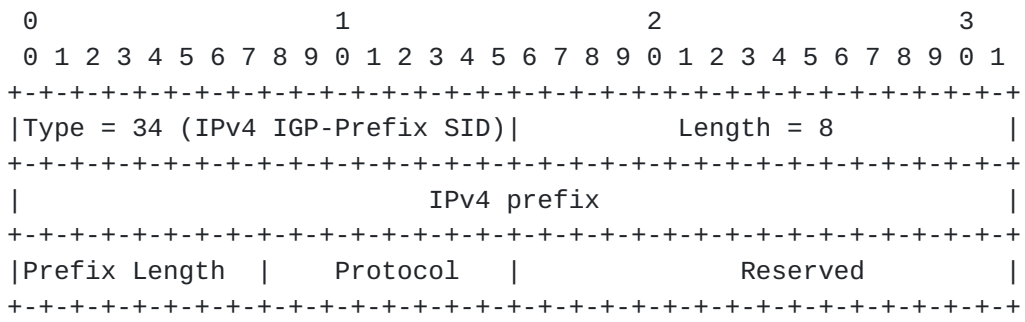
4. Length field clarification for Segment ID Sub-TLVs

Section 5 of [RFC8287] defines 3 different Segment ID Sub-TLVs that will be included in Target FEC Stack TLV defined in [RFC8029]. The length of each Sub-TLVs MUST be calculated as defined in this section.

The TLVs representation defined in section 5.1, 5.2 and 5.3 of [RFC8287] are updated to clarify the length calculation as shown in section 4.1, 4.2 and 4.3 respectively. The updated TLV representation contain explicitly defined length.

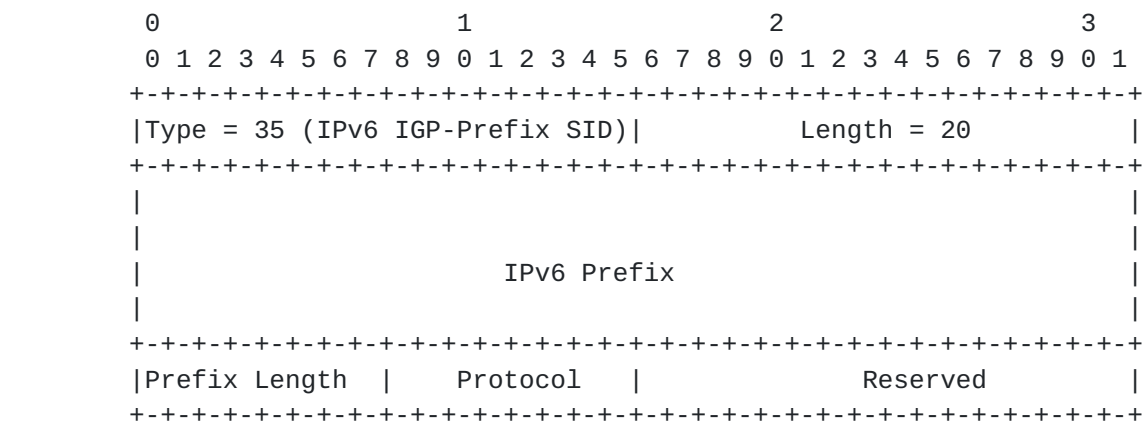
4.1. IPv4 IGP-Prefix Segment ID Sub-TLV

The Sub-TLV length for IPv4 IGP-Prefix Segment ID MUST be set to 8 as shown in the below TLV format:



4.2. IPv6 IGP-Prefix Segment ID Sub-TLV

The Sub-TLV length for IPv6 IGP-Prefix Segment ID MUST be set to 20 as shown in the below TLV format:



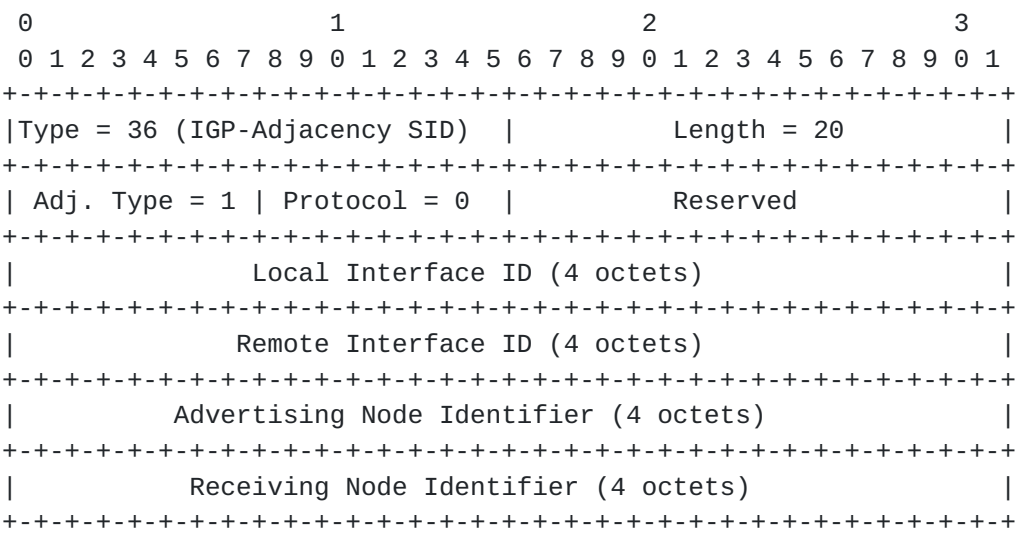
4.3. IGP-Adjacency Segment ID Sub-TLV

The Sub-TLV length for IGP-Adjacency Segment ID varies depending on the Adjacency Type and Protocol. In any of the allowed combination of Adjacency Type and Protocol, the sub-TLV length MUST be calculated by including 2 octets of Reserved field. Table 1 below list the length for different combinations of Adj.Type and Protocol.

Protocol	Length for Adj.Type			
	Parallel	IPv4	IPv6	Unnumbered
OSPF	20	20	44	20
ISIS	24	24	48	24
Any	20	20	44	20

Table 1. IGP-Adjacency SID Length Comparison

For example, when the Adj. Type is set to Parallel Adjacency and the Protocol is set to 0, the Sub-TLV will be as below:



5. IANA Considerations

This document does not introduce any IANA consideration.

6. Security Considerations

This document updates [RFC8287] and does not introduce any additional security considerations.

7. Contributors

The below individuals contributed to this document:

Zafar Ali, Cisco Systems, Inc.

8. Acknowledgement

The authors would like to thank Michael Gorokhovsky and Manohar Doppalapudi for investigating the interop issue during EANTC test.

9. Normative References

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