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Signaling MNA Capability Using IGP and BGP-LS
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Abstract

This document defines a mechanism to signal MNA Capability using IGP and Border Gateway Protocol-Link State(BGP-LS).

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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This Internet-Draft will expire on 23 January 2026.

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1. Introduction

[I-D.ietf-mpls-mna-fwk] specifies an architectural framework for the MPLS Network Actions (MNA) technologies. MNA technologies are used to indicate actions for Label Switched Paths (LSPs) and MPLS packets to transfer data needed for these actions.

[I-D.ietf-mpls-mna-hdr] defines the syntax and semantics of network actions encoded within an MPLS Label Stack. Network actions can be encoded with or without Ancillary Data (AD), either in or after the label stack. It defines four types of Label Stack Entry Formats.

However, for the same network action, multiple encoding format are defined. For example, [I-D.li-mpls-mna-entropy]describes a network action for entropy and uses LSE Format C to encoded entropy action within an MPLS Label Stack. [RFC6790]defines MPLS encapsulation with ELI and entropy labels; [I-D.ietf-mpls-mna-nrp-selector] describes a network action for NRP Selector, and it defines LSE Format B or LSE Format C maybe used to carry the NRP Selector.

The ingress node /Controller should obtain the network action of the nodes within the MNA infrastructure, which ensure that the encapsulated data packets by the ingress node can be correctly parsed by the on-path nodes.

This document defines how the ingress node knows of the network action all the on-path nodes within the MNA infrastructure. It defines a mechanism to signal the MPLS Network actions(MNA) using IGP and BGP-LS.

1.1. Requirements Language

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. Advertising MNA Using IS-IS

This section defines the MNA-Capabilities Sub-TLV that are inserted into the IS-IS Router Capability that is defined in [RFC7981].

The format of the MNA-Capabilities Sub-TLV is:

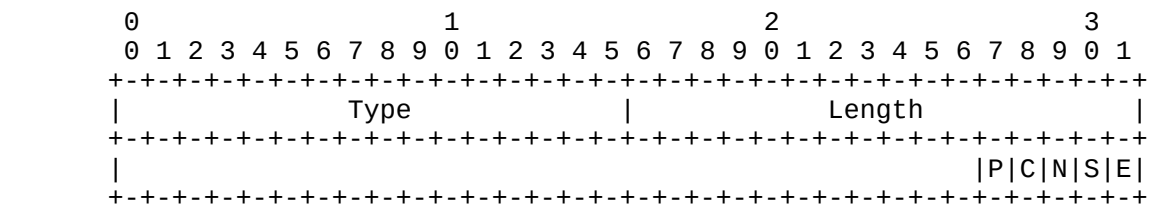

Figure 1

where:

Type: TBD.

Length: 4.

Flags: 4 octet of flags. The following are defined:

* E: Entropy flag. If set, then the router is capable of processing Entropy action in LSE Format B on all interfaces.

* S: 13-bit NRP Selector flag. If set, then the router is capable of processing 13-bit NRP Selector (NRPS13) on all interfaces.

* N: 20-bit NRP Selector (NRPS20). If set, then the router is capable of processing 20-bit NRP Selector (NRPS13) on all interfaces.

* C: 20-bit Entropy and NRP Selector (ENRPS20). If set, then the router is capable of processing 20-bit Entropy and NRP Selector (ENRPS20) on all interfaces.

* P: Performance Measurement with Alternate Marking Method (PMAMM) flag. If set, then the router is capable of processing PMAMM on all interfaces.

The TLVs defined in this section are applicable to both OSPFv2, OSPFv3 and BGP-LS.

3. Advertising MNA Using OSPF

This section defines the MNA-Capabilities TLV that are inserted into the Router Information Opaque LSA（for OSPFv2）and OSPFv3 Router Information Opaque LSA（for OSPFv3）(defined in [RFC7770]). The format of the MNA-Capabilities TLV is the same as section 2.

4. Signaling MNA in BGP-LS

The IGP extensions defined in this document can be advertised via BGP-LS (distribution of Link-State and Traffic Engineering information using BGP) [RFC7752] using existing BGP-LS TLVs.

This section defines the following Node Attribute TLV:

Type	Description
TBD	the MNA-Capabilities TLV

Figure 2

5. Acknowledgements

TBD.

6. IANA Considerations

TBD.

7. Security Considerations

Procedures and protocol extensions defined in this document do not affect the IS-IS, OSPFv2 , OSPFv3 and BGP security model. See the "Security Considerations"section of [RFC7981] for a discussion of IS-IS security, [RFC7684] for a discussion of OSPFv2 security, the "Security Considerations"section of [RFC8362] for a discussion of OSPFv3 security and [RFC4271] for a discussion of OSPFv2 security.

8. Normative References

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