                  OSPFv3 CodePoint for MPLS LSP Ping
                 draft-ietf-mpls-lsp-ping-ospfv3-codepoint-02

Abstract

   IANA has created "Protocol in the Segment IS Sub-TLV" registry and
   "Protocol in the Label Stack Sub-TLV of the Downstream Detailed
   Mapping TLV" under the "Multi-Protocol Label Switching (MPLS) Label
   Switched Paths (LSPs) Ping Parameters" registry. RFC8287 defines the
   code point for different Interior Gateway Protocol (IGP).

   This document proposes the code point to be used in the Segment ID
   Sub-TLV and Downstream Detailed Mapping TLV when the IGP protocol is
   OSPFv3. This document also clarifies that the existing codepoints of
   these two TLVs called "OSPF" shall only be used for OSPFv2.

Status of This Memo

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

   Internet-Drafts are working documents of the Internet Engineering
   Task Force (IETF). Note that other groups may also distribute
   working documents as Internet-Drafts. The list of current Internet-
   Drafts is at https://datatracker.ietf.org/drafts/current/.

   Internet-Drafts are draft documents valid for a maximum of six months
   and may be updated, replaced, or obsoleted by other documents at any
   time. It is inappropriate to use Internet-Drafts as reference
   material or to cite them other than as "work in progress."

   This Internet-Draft will expire on November 8, 2020.

Copyright Notice

Table of Contents

1. Introduction

IANA has created "Protocol in the Segment IS Sub-TLV" registry and
"Protocol in the Label Stack Sub-TLV of the Downstream Detailed
Mapping TLV" under the "Multi-Protocol Label Switching (MPLS) Label
Switched Paths (LSPs) Ping Parameters" registry [IANA-MPLS-LSP-PING].
[RFC8287] defines the code point for different Interior Gateway
Protocol (IGP).

[RFC5340] describes OSPF version 3 (OSPFv3) protocol to support IPv6.
[RFC5838] describes the mechanism to support multiple address
families (AFs) in OSPFv3. Accordingly OSPFv3 may be used to
advertise IPv6 and IPv4 prefixes.

This document proposes the code point to be used in the Segment ID
Sub-TLV (Type 34, 35 and 36) and Downstream Detailed Mapping (DDMAP)
TLV when the IGP protocol is OSPFv3.

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", "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.

4. OSPFv3 protocol in Segment ID Sub-TLVs

When the protocol field of the Segment ID Sub-TLV Type 34, 35 and 36 is set to TBD1, the responder MUST perform the FEC validation using OSPFv3 as the IGP protocol.

The initiator MUST NOT set the protocol field of the Segment ID Sub-TLV Type 35 as OSPFv2.

When the protocol field in the received Segment ID Sub-TLV Type 35 is OSPFv2, the responder MAY treat the protocol value as 0 and process the as defined in Section 7.4 of [RFC8287].

5. OSPFv3 protocol in Downstream Detailed Mapping TLV

The protocol field of the Downstream Detailed Mapping (DDMAP) TLV in an echo reply is set to TBD2 when OSPFv3 is used to distribute the label carried in the Downstream Label field.

6. OSPFv2 Protocol in Segment ID and DDMAP Sub-TLVs

Section 5 of [RFC8287] defines the code point for OSPF to be used in the Protocol field of the Segment ID Sub-TLV. Section 6 of [RFC8287] defines the code point for OSPF to be used in the Protocol field of the DDMAP TLV.

This document clarifies that the above codepoints will be used only for OSPFv2.

7. IANA Considerations

7.1. Protocol in the Segment ID sub-TLV

IANA is requested to assign one new code point of OSPFv3 from "Protocol in the Segment ID sub-TLV" registry under the "Multi-Protocol Label Switching (MPLS) Label Switched Paths (LSPs) Ping Parameters" registry:

```
   Value         Meaning     Reference
   ----------    -------     ------------
   TBD1          OSPFv3      This document
    1            OSPF           RFC8287
```

IANA is also requested to add a clarifying note for the existing
codepoint 1 (OSPF) as - "To be used for OSPFv2 only".

7.2. Protocol in Label Stack Sub-TLV of Downstream Detailed Mapping TLV

IANA is requested to assign one new code point for OSPFv3 from
"Protocol in Label Stack Sub-TLV of Downstream Detailed Mapping TLV"
registry under the "Multi-Protocol Label Switching (MPLS) Label
Switched Paths (LSPs) Ping Parameters" registry:

```
   Value         Meaning     Reference
   ----------    ---------   ------------
   TBD2          OSPFv3      This document
    5            OSPF           RFC8287
```

IANA is also requested to add a clarifying note for the existing
codepoint 5 (OSPF) as - "To be used for OSPFv2 only".

8. Security Considerations

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

9. Acknowledgement

The authors would like to thank Les Ginsberg, Zafar Ali, Loa
Andersson, Andrew Molotchko and Deborah Brungard for their review and
suggestions.

10. Normative References

[IANA-MPLS-LSP-PING]
          IANA, "Multi-Protocol Label Switching (MPLS) Label
          Switched Paths (LSPs) Ping Parameters",
          <http://www.iana.org/assignments/mpls-lsp-ping-parameters/
          mpls-lsp-ping-parameters.xhtml>.

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

   [RFC5340] Coltun, R., Ferguson, D., Moy, J., and A. Lindem, "OSPF
              for IPv6", RFC 5340, DOI 10.17487/RFC5340, July 2008,
              <https://www.rfc-editor.org/info/rfc5340>.

   [RFC5838] Lindem, A., Ed., Mirtorabi, S., Roy, A., Barnes, M., and
              R. Aggarwal, "Support of Address Families in OSPFv3",
              RFC 5838, DOI 10.17487/RFC5838, April 2010,
              <https://www.rfc-editor.org/info/rfc5838>.

   [RFC8029] Kompella, K., Swallow, G., Pignataro, C., Ed., Kumar, N.,
              Aldrin, S., and M. Chen, "Detecting Multiprotocol Label
              Switched (MPLS) Data-Plane Failures", RFC 8029,
              DOI 10.17487/RFC8029, March 2017,
              <https://www.rfc-editor.org/info/rfc8029>.

   [RFC8174] Leiba, B., "Ambiguity of Uppercase vs Lowercase in RFC
              2119 Key Words", BCP 14, RFC 8174, DOI 10.17487/RFC8174,
              May 2017, <https://www.rfc-editor.org/info/rfc8174>.

   [RFC8287] Kumar, N., Ed., Pignataro, C., Ed., Swallow, G., Akiya,
              N., Kini, S., and M. Chen, "Label Switched Path (LSP)
              Ping/Traceroute for Segment Routing (SR) IGP-Prefix and
              IGP-Adjacency Segment Identifiers (SIDs) with MPLS Data
              Planes", RFC 8287, DOI 10.17487/RFC8287, December 2017,
              <https://www.rfc-editor.org/info/rfc8287>.

   [RFC8402] Filsfils, C., Ed., Previdi, S., Ed., Ginsberg, L.,
              Decraene, B., Litkowski, S., and R. Shakir, "Segment
              Routing Architecture", RFC 8402, DOI 10.17487/RFC8402,
              July 2018, <https://www.rfc-editor.org/info/rfc8402>.

Authors' Addresses

   Nagendra Kumar Nainar
   Cisco Systems, Inc.
   7200-12 Kit Creek Road
   Research Triangle Park, NC 27709
   US

   Email: naikumar@cisco.com

Carlos Pignataro
Cisco Systems, Inc.
7200-11 Kit Creek Road
Research Triangle Park, NC 27709
US

Email: cpignata@cisco.com

Mustapha Aissaoui
Nokia
Canada

Email: mustapha.aissaoui@nokia.com