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OSPF Extensions to Advertise Seamless Bidirectional Forwarding Detection
(S-BFD) Target Discriminators

[draft-ietf-ospf-sbfd-discriminator-06](#)

Abstract

This document defines a new OSPF Router Information (RI) TLV that allows OSPF routers to flood the Seamless Bidirectional Forwarding Detection (S-BFD) discriminator values associated with a target network identifier. This mechanism is applicable to both OSPFv2 and OSPFv3.

Requirements Language

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](#)].

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[1.](#) Introduction

Seamless Bidirectional Forwarding Detection (S-BFD), specified in [[I-D.ietf-bfd-seamless-base](#)], is a simplified mechanism for using Bidirectional Forwarding Detection (BFD) with many negotiations eliminated. This is achieved by using four-octet discriminators, unique within an administrative domain, to identify the Network Targets. These S-BFD discriminators can be advertised by the IGPs, and this document concerns itself with OSPF. Specifically, this document defines a new TLV (named the S-BFD Discriminator TLV) to be carried within the OSPF Router Information (RI) Link State Advertisement (LSA) ([[RFC7770](#)]).


```

0      1      2      3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+
|                                     |                                     |
|                                     Type                               Length                                     |
+-+-+
|                                     Discriminator 1                                     |
+-+-+
|                                     Discriminator 2 (Optional)                                     |
+-+-+
|                                     ...                                     |
+-+-+
|                                     Discriminator n (Optional)                                     |
+-+-+

```


Type - S-BFD Discriminator TLV Type (TBD [to be filled in by IANA])

Length - Total length of the discriminator(s) that appear in the Value field, in octets. Each discriminator is 4 octets, so the Length is 4 times the number of discriminators included in the TLV. There is no optional padding for this field.

Discriminator(s) - The Value field of the TVL includes the S-BFD network target discriminator value or values.

Routers that do not recognize the S-BFD Discriminator TLV Type will ignore the TLV [[RFC7770](#)], and therefore will not learn S-BFD discriminators via OSPF.

2.2. Flooding Scope

The S-BFD Discriminator TLV is advertised within OSPFv2 Router Information LSAs (Opaque type of 4 and Opaque ID of 0) or OSPFv3 Router Information LSAs (function code of 12), which are defined in [[RFC7770](#)]. As such, elements of procedure are inherited from those defined in [[RFC7770](#)].

In OSPFv2, the flooding scope is controlled by the opaque LSA type (as defined in [[RFC5250](#)]) and in OSPFv3, by the S1/S2 bits (as defined in [[RFC5340](#)]). If the flooding scope is area local, then the S-BFD Discriminator TLV MUST be carried within an OSPFv2 type 10 router information LSA or an OSPFv3 Router Information LSA with the S1 bit set and the S2 bit clear. If the flooding scope is the entire IGP domain, then the S-BFD Discriminator TLV MUST be carried within an OSPFv2 type 11 Router Information LSA or OSPFv3 Router Information LSA with the S1 bit clear and the S2 bit set.

When the S-BFD Reflector is deactivated, the OSPF speaker advertising this S-BFD discriminator MUST originate a new Router Information LSA that no longer includes the corresponding S-BFD Discriminator TLV, provided there are other TLVs in the LSA. If there are no other TLVs in the LSA, it MUST either send an empty Router Information LSA or purge it by prematurely ageing it.

For intra-area reachability, the S-BFD Discriminator TLV information regarding a specific target identifier is only considered current and useable when the router advertising this information is itself reachable via OSPF calculated paths in the same area of the LSA in which the S-BFD Discriminator TLV appears. In the case of domain-wide flooding, i.e., where the originator is sitting in a remote area, the mechanism described in [section 5 of \[\[RFC5250\]\(#\)\]](#) should be used.

Although the S-BFD discriminators may change when enabling the S-BFD functionality or via an explicit configuration event, such changes are expected to occur very rarely. Such a change in the information will require S-BFD Discriminator TLV in OSPF to be advertised.

A change in information in the S-BFD Discriminator TLV MUST NOT trigger any SPF computation at a receiving router.

3. Backward Compatibility

The S-BFD Discriminator TLV defined in this document does not introduce any interoperability issues.

A router not supporting the S-BFD Discriminator TLV will just silently ignore the TLV as specified in [[RFC7770](#)].

4. Security Considerations

This document defines OSPF extensions to distribute the S-BFD discriminator within an administrative domain. Hence the security of the S-BFD discriminator distribution relies on the security of OSPF.

OSPF provides no encryption mechanism for protecting the privacy of LSAs and, in particular, the privacy of the S-BFD discriminator advertisement information. This however is not a concern as there isn't any need to hide the discriminator value that can be used to reach the Reflectors.

5. IANA Considerations

IANA has defined a registry for TLVs carried in the Router Information LSA defined in [[RFC7770](#)]. IANA needs to assign a new TLV codepoint for the S-BFD Discriminator TLV carried within the Router Information LSA.

Value	TLV Name	Reference
-----	-----	-----
TBD	S-BFD Discriminator	(this document)

6. Acknowledgements

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