

# Prefix Flag Extension for OSPFv2 and OSPFv3

## draft-chen-lsr-prefix-extended-flags-02

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# Motivation

- Each prefix is advertised along with an 8-bit field of capabilities, by using the Prefix Options[RFC5340] and the flag field in the OSPFv2 Extended Prefix TLV [RFC7684]. However, for OSPFv3, all the bits of the Prefix Options have already been assigned, and for OSPFv2, there are not many undefined bits left in the OSPFv2 Extended Prefix TLV.
- This document solves the problem of insufficient existing flags, and defines the Prefix Attributes Sub-TLVs for OSPFv2 and OSPFv3 respectively for the extended flag fields.

# Background

- For OSPFv2, as defined in [RFC7684], the length of the Flag field is 8 bits, and there are only two bits left in the OSPFv2 Extended Prefix TLV that are undefined.

| Value | Description       | Reference                                 |
|-------|-------------------|---|
| 0x80  | A                 | [RFC7684]                                 |
| 0x40  | N                 | [RFC7684]                                 |
| 0x20  | E-Flag (ELC Flag) | [RFC9089]                                 |
| TBD   | U                 | [I-D.ietf-lsr-igp-ureach-prefix-announce] |
| TBD   | UP                | [I-D.ietf-lsr-igp-ureach-prefix-announce] |
| TBD   | AC                | [I-D.chen-lsr-anycast-flag]               |

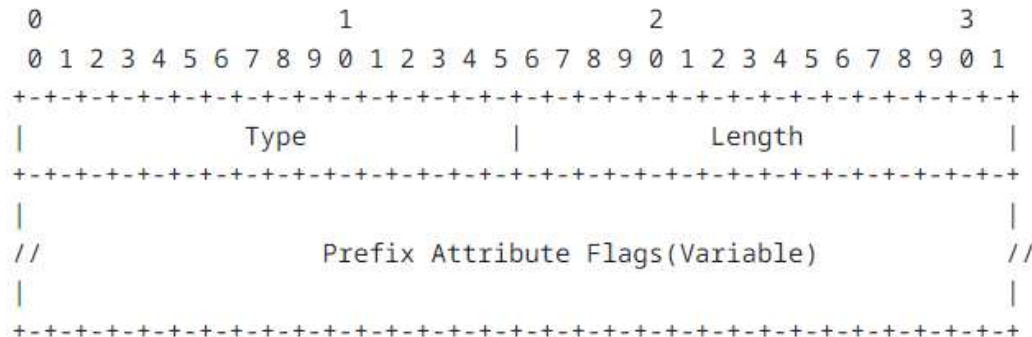
# Background(cont.)

- For OSPFv3, as defined in [RFC5340], the length of the Flag field is 8 bits, and all of the bits have already been defined as shown in below:

| Value | Description       | Reference                             |
|-------|-------------------|---------------------------------------|
| 0x01  | NU-bit            | [RFC5340]                             |
| 0x02  | LA-bit            | [RFC5340]                             |
| 0x04  | Deprecated        | [RFC5340]                             |
| 0x08  | P-bit             | [RFC5340]                             |
| 0x10  | DN-bit            | [RFC5340]                             |
| 0x20  | N-bit             | [RFC8362]                             |
| 0x40  | E-Flag (ELC Flag) | [RFC9089]                             |
| 0x80  | AC-bit            | [I-D.ietf-lsr-ospfv3-srv6-extensions] |

# Extensions

- This document creates two new variable length Prefix Attributes Sub-TLVs for OSPFv2 and OSPFv3.
- The format of OSPFv2 Prefix Attributes Sub-TLV is:



- Type: TBD1.
- Length: This indicates the length of the value part in bytes.
- Prefix Attribute Flags: Variable. The extended flag fields. This contains an array of units of 32-bit flags numbered from the most significant as bit zero.
  - Currently, no bits are defined.
- OSPFv2 Prefix Attributes Sub-TLV is a sub-TLV of the OSPFv2 Extended Prefix TLV as defined in [RFC7684].



# Processing

- The Extended Flags field is an array of units of 32 flags that are allocated starting from the most significant bit.
- This document does not define any flags. The bits of the Extended Flags field will be assigned by future documents.
- PCEP peers MUST handle varying lengths of the Prefix Attributes Sub-TLV.
- If a device receives the Prefix Attributes Sub-TLV of a length more than it currently supports or understands, it MUST ignore the bits beyond that length.
- If a device receives the Prefix Attributes Sub-TLV of a length less than the one supported by the implementation, it MUST act as if the bits beyond the length were not set.

# Backward Compatibility

- An implementation that does not understand or support the Prefix Attributes Sub-TLV MUST ignore the TLV.
- Further, any additional bits in the OSPFv2/OSPFv3 Prefix Attributes Sub-TLV that are not understood by an implementation MUST be ignored.



# Update

- <https://www.ietf.org/archive/id/draft-chen-lsr-anycast-flag-01.txt> defines a new variable length Prefix Attributes Sub-TLVs for OSPFv2 and OSPFv3 and a new flag in the Prefix Attributes Sub-TLV to advertise the anycast property. However, due to receiving some comments from WG , in the 03 version, the existing TLV is still used for extension for anycast.
- But a new draft <https://datatracker.ietf.org/doc/draft-chen-lsr-prefix-extended-flags/> was separated from this draft to solve the problem of insufficient existing flags.

# Next Step

- Comments welcome.
- WG adoption 😊

Thanks!