

**Extensions to OSPF for Advertising Prefix Administrative Tags**  
**draft-acee-lsr-ospf-admin-tags-07**

Abstract

It is useful for routers in an OSPFv2 or OSPFv3 routing domain to be able to associate tags with prefixes. Previously, OSPFv2 and OSPFv3 were relegated to a single tag for AS External and Not-So-Stubby-Area (NSSA) prefixes. With the flexible encodings provided by OSPFv2 Prefix/Link Attribute Advertisement and OSPFv3 Extended LSAs, multiple administrative tags may be advertised for all types of prefixes. These administrative tags can be used for many applications including route redistribution policy, selective prefix prioritization, selective IP Fast-ReRoute (IPFRR) prefix protection, and many others.

The ISIS protocol supports a similar mechanism that is described in [RFC 5130](#).

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## Table of Contents

<a href="#">1.</a>	<a href="#">Introduction</a>	<a href="#">2</a>
<a href="#">1.1.</a>	<a href="#">Requirements Language</a>	<a href="#">3</a>
<a href="#">2.</a>	<a href="#">32-Bit Administrative Tag Sub-TLV</a>	<a href="#">3</a>
<a href="#">3.</a>	<a href="#">Administrative Tag Applicability</a>	<a href="#">4</a>
<a href="#">4.</a>	<a href="#">Protocol Operation</a>	<a href="#">5</a>
<a href="#">4.1.</a>	<a href="#">Equal-Cost Multipath Applicability</a>	<a href="#">5</a>
<a href="#">5.</a>	<a href="#">Security Considerations</a>	<a href="#">5</a>
<a href="#">6.</a>	<a href="#">IANA Considerations</a>	<a href="#">6</a>
<a href="#">7.</a>	<a href="#">Acknowledgments</a>	<a href="#">6</a>
<a href="#">8.</a>	<a href="#">References</a>	<a href="#">6</a>
<a href="#">8.1.</a>	<a href="#">Normative References</a>	<a href="#">6</a>
<a href="#">8.2.</a>	<a href="#">Informative References</a>	<a href="#">7</a>
<a href="#">Appendix A.</a>	<a href="#">64-Bit Administrative Tag Sub-TLV</a>	<a href="#">8</a>
<a href="#">Appendix B.</a>	<a href="#">Link Administrative Tags</a>	<a href="#">8</a>
	<a href="#">Authors' Addresses</a>	<a href="#">9</a>

## [1.](#) Introduction

It is useful for routers in an OSPFv2 [[RFC2328](#)] or OSPFv3 [[RFC5340](#)] routing domain to be able to associate tags with prefixes. Previously, OSPFv2 and OSPFv3 were relegated to a single tag for AS External and Not-So-Stubby-Area (NSSA) prefixes. With the flexible encodings provided by OSPFv2 Prefix/Link Attribute Advertisement ([[RFC7684](#)]) and OSPFv3 Extended LSA ([[RFC8362](#)]), multiple administrative tags may be advertised for all types of prefixes. These administrative tags can be used many applications including (but not limited to):

1. Controlling which routes are redistributed into other protocols for readvertisement.
2. Prioritizing selected prefixes for faster convergence and installation in the forwarding plane.
3. Identifying selected prefixes for Loop-Free Alternative (LFA) protection.











3. External-Prefix TLV advertised in the E-AS-External-LSA and the E-NSSA-LSA

#### **4. Protocol Operation**

An OSPF router supporting this specification MUST propagate administrative tags when acting as an Area Border Router and originating summary advertisements into other areas. Similarly, an OSPF router supporting this specification and acting as an ABR for a Not-So-Stubby Area (NSSA) MUST propagate tags when translating NSSA routes to AS External advertisements [[RFC3101](#)]. The number of tags supported MAY limit the number of tags that are propagated. When propagating multiple tags, the order of the the tags must be preserved.

For configured area ranges, NSSA ranges, and configured summarization of redistributed routes, tags from component routes SHOULD NOT be propagated to the summary. Implementations SHOULD provide a mechanism to configure tags for area ranges, NSSA ranges, and redistributed route summaries.

An OSPF router supporting this specification MUST be able to advertise and interpret one 32-bit tag for prefixes. An OSPF router supporting this specification MAY be able to advertise and propagate multiple 32-bit tags. The maximum tags that an implementation supports is a local matter depending upon supported applications using the prefix or link tags.

When a single tag is advertised for AS External or NSSA LSA prefix, the existing tag in OSPFv2 and OSPFv3 AS-External-LSA and NSSA-LSA encodings SHOULD be utilized. This will facilitate backward compatibility with implementations that do not support this specification.

##### **4.1. Equal-Cost Multipath Applicability**

When multiple LSAs contribute to an OSPF route, it is possible that these LSAs will all have different tags. In this situation, the OSPF router MUST associate the tags from one of the LSAs contributing a path and, if the implementation supports multiple tags, MAY associate tags for multiple contributing LSAs up to the maximum number of tags supported.

#### **5. Security Considerations**

This document describes a generic mechanism for advertising administrative tags for OSPF prefixes. The administrative tags are generally less critical than the topology information currently





advertised by the base OSPF protocol. The security considerations for the generic mechanism are dependent on the future application and, as such, should be described as additional capabilities are proposed for advertisement. Security considerations for the base OSPF protocol are covered in [[RFC2328](#)] and [[RFC5340](#)].

## 6. IANA Considerations

The following values should be allocated from the OSPF Extended Prefix TLV Sub-TLV Registry [[RFC7684](#)]:

- o TBD - 32-bit Administrative Tag TLV

The following values should be allocated from the OSPFv3 Extended-LSA Sub-TLV Registry [[RFC8362](#)]:

- o TBD - 32-bit Administrative Tag TLV

## 7. Acknowledgments

The authors of [RFC 5130](#) are acknowledged since this document draws upon both the ISIS specification and deployment experience.

Thanks to Donnie Savage for his comments and questions.

The RFC text was produced using Marshall Rose's xml2rfc tool.

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The advertisement of administrative tags corresponding to links has been removed from the document. The specification of advertising link administrative groups as specified in



[I-D.ietf-ospf-te-link-attr-reuse] advertising administrative tags  
for links.

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