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Multicast Router Discovery SSM Range Option

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Abstract

This document defines the Multicast Router Discovery option for advertising the configured Source Specific Multicast destination address range.

1. Introduction

With current multicast deployment in the Internet, different multicast routing protocols coexist and operate under separate parts of the multicast address space [1]. Multicast routers are consistently configured with information that maps specific multicast destination address ranges to multicast routing protocols. Part of this configuration describes the subset of the address space that is used by source-specific multicast (SSM) [2].

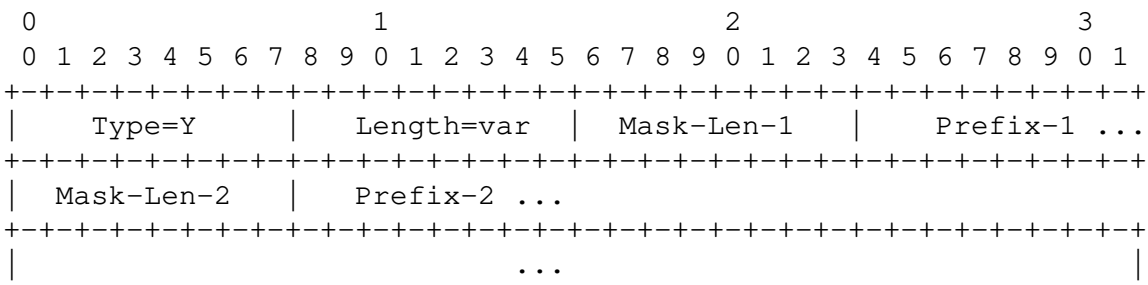
There are currently two requirements for a router to advertise its configured SSM range on its attached links:

- On links with multiple multicast routers, advertisement of the configured SSM range by each router can be used to discover miss-configurations.
- IP systems with multicast sources or receivers can use the advertisements to learn the SSM group range with which the network is configured.

This document defines an optional extension for the Multicast Router Discovery protocol [3] which can be used to advertise the SSM range.

2. SSM Range Option

The SSM Range option SHOULD be included in all Multicast Router Advertisement messages for IPv4 [3] and all Neighbour Discovery Protocol Router Advertisement messages for IPv6 [4]. It contains the list of multicast destination address ranges that are configured to operate under Source Specific Multicast on this router. The format of the option is as follows:



Type

The type value of the SSM Range option is TBD-X when present in IPv4 Multicast Router Advertisement messages and TBD-Z when present in IPv6 Neighbour Discovery Protocol Advertisement messages.

Length

The length of the SSM Range Discovery option is variable and depends on the number of destination ranges present in the option as well as the sizes of the ranges.

Mask-Len-n

The mask length for the nth address range.

Prefix-n

The multicast destination address prefix of the nth range present in this option. The size of

the prefix field is variable and depends on the number of significant bits in the prefix (specified in the corresponding Mask-Len field). The field is padded by enough trailing bits to make the end of the field fall on an octet boundary. Note that the value of the trailing bits is irrelevant.

A router receiving a Multicast Router Advertisement message or a Neighbour Discovery Protocol Router Advertisement message with an SSM Range Discovery Option must compare the contents of the option with the multicast address ranges in the local SSM configuration and signal any differences to the administrator in a rate-limited manner.

3. Acknowledgements

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4. Authors' Addresses

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5. References

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[2] H. Holbrook, B. Cain, "Source-Specific Multicast for IP", work in progress, <draft-ietf-ssm-arch-00.txt>, 21 November 2001.

[3] S. Biswas, B. Haberman, "IGMP Multicast Router Discovery", Work In Progress, <draft-ietf-idmr-igmp-mrdisc-??.txt>, 2002.

[4] T. Narten, E. Nordmark, W. Simpson, "Neighbour Discovery for IP Version 6 (IPv6)", Standards Track RFC2461, December 1998.