RSVP-TE IPv6
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Abstract

RSVP defined in [RFC2205] defines a resource reservation setup protocol, designed for an integrated service internet.

RSVP-TE defined in [RFC2205] extends RSVP to establish LSP’s in MPLS. For RSVP-TE hops that cannot allocate Labels cannot exist in the PATH of the LSP’s. It is therefore specified that for IPv6 RSVP-TE LSP’s Path, PathTear and ResvConf Messages should address the messages directly to an adjacent node control plane IPv6 address.

This document also specifies some other changes required for RSVP-TE to work over IPv6 transport.

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

RSVP was designed to allow non RSVP nodes along the PATH to exist. The restriction does not apply for RSVP-TE for IPv6 as a node that cannot allocate Labels cannot exist in the PATH of the LSP’s. RSVP-TE for IPv6 has not been widely deployed. It is therefore recommended that RSVP-TE signalling over IPv6 not use Router Alert Option but instead send packet to the Peer control plane address.

Some other details missed out in IPv6 are also explained in detail.

2. Router Alert Option Details

RSVP itself does not specify anything about the Router Alert Option in IPv6, though it explicitly specifies the details of the Router Alert Option for IPv4. It however specifies extensions for all the objects for IPv6.

Assuming the Path, PathTear or ResvConf Message use Router Alert in IPv6 extension in the IPv6 just like in IPv4, the IPv6 Hop-by-Hop options header is extended for allowing the Router Alert Functionality [RFC2711].

Besides the known security risks related to DoS attacks with Router Alert in operational networks, the option is also not well implemented in the field in most OS’s. It is therefore recommended that Path, PathTear or ResvConf messages when transported over IPv6 SHOULD send the packets directly to the neighbor control plane IPv6 address.

3. Other minor changes

Hello Messages need to be sent out with the Hop Limit Field set to 1 for IPv6 based Hellos.

4. IANA Considerations

This document makes no request of IANA.

Note to RFC Editor: this section may be removed on publication as an RFC.
5. Security Considerations

This document precludes the use of the Router Alert Option, which is related to possible security risks related to DoS attacks. This draft thus improves the security of the IPv6 based RSVP-TE.

This draft clarifies the behavior of RSVP-TE for IPv6 which can lead to better implementations and hence lesser security and other issues.

6. Acknowledgements

7. References

7.1. Normative References


7.2. Informative References


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