



Introduction to SRv6 IS-IS

This chapter introduces SRv6 as it integrates with the Intermediate System-to-Intermediate System (IS-IS) protocol. As network demands for agility, scalability, and programmability continue to grow, SRv6 provides a robust framework for advanced traffic engineering and simplified operations within an IPv6 environment. Here you will learn how SRv6 extends IS-IS capabilities to advertise Segment Identifiers (SIDs) and manage IPv6 data plane segments.

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SRv6 IS-IS

SRv6 IS-IS is an extension to the Intermediate System-to-Intermediate System (IS-IS) protocol that

- supports Segment Routing with an IPv6 data plane
- enables the advertisement of SRv6 capabilities of nodes, and
- enables the advertisement of node and adjacency segments as SRv6 SIDs within the IS-IS routing domain.

Key concepts of SRv6 IS-IS

- Intermediate System-to-Intermediate System (IS-IS) protocol: A link-state interior gateway protocol (IGP) used for routing within an administrative domain. SRv6 IS-IS extends this protocol to advertise SRv6-specific information.
- SRv6 SID (Segment Identifier): An IPv6 address that represents a specific network function or instruction. SIDs are the fundamental building blocks of SRv6 paths and are advertised by nodes within the network. See [Segment Identifiers](#).
- Node segment: An SRv6 SID that identifies a specific node (router) in the network. When a packet is steered to a node SID, that node processes the packet.
- Adjacency segment: An SRv6 SID that identifies a specific link (adjacency) between two nodes. When a packet is steered to an adjacency SID, it is forwarded over that specific link.
- SRv6 locator: An IPv6 prefix that identifies an SRv6-enabled node and is advertised by the IS-IS protocol. Locators act as the "home address" for SIDs allocated by that node, providing reachability to the SIDs. See [Enable Traffic Steering with SRv6 Locators](#).

- IGP domain: The collection of routers and links that operate under a single instance of an Interior Gateway Protocol (IGP), such as IS-IS. SRv6 SIDs and locators are advertised and learned within this domain.

SRv6 IS-IS functionalities

SRv6 IS-IS performs these functionalities:

- Interacts with SID Manager to learn local locator prefixes and announces the locator prefixes in the IGP domain.
- Learns remote locator prefixes from other ISIS neighbor routers and installs the learned remote locator IPv6 prefix in RIB or FIB.
- Allocates or learns prefix SID and adjacency SIDs, creates local SID entries, and advertises them in the IGP domain.

Usage guidelines for SRv6 IS-IS

An IS-IS address-family can support either SR-MPLS or SRv6, but both at the same time is not supported.

Configure SRv6 IS-IS

To enable SRv6 capabilities within the IS-IS routing protocol, allowing for the advertisement of SRv6 locators and SIDs.

Before you begin

- Ensure that the IS-IS routing protocol is already configured on your router.
- SRv6 locator must be defined before enabling SRv6 under IS-IS. [Configure SRv6 locators](#).

Procedure

Enable SRv6 under the IS-IS IPv6 address-family and assign SRv6 locator to it.

Example:

```
Router(config)# router isis core
Router(config-isis)# address-family ipv6 unicast
Router(config-isis-af)# segment-routing srv6
Router(config-isis-srv6)# locator myLoc1
Router(config-isis-srv6-loc)# exit
```
