Advertisement of Loopback Prefix SIDs of a Border Router in Multiple ISIS Domains

A border router can advertise the same loopback interface prefixes and the associated prefix Segment Identifiers (SIDs) in multiple ISIS domains.

Feature Information for Advertisement of Loopback Prefix SIDs of a Border Router in Multiple ISIS Domains

Table 1: Feature Information for Performance Measurement for Traffic Engineering

Feature Name	Releases	Feature Information
Advertisement of Loopback Prefix SIDs of a Border Router in Multiple ISIS Domains	Cisco IOS XE Amsterdam 17.3.2	A border router can advertise loopback interface prefixes and the associated prefix Segment Identifiers (SIDs) in multiple ISIS domains. With such an advertisement, the routers in each associated domain can communicate with the border router using the same prefixes and prefix SIDs.

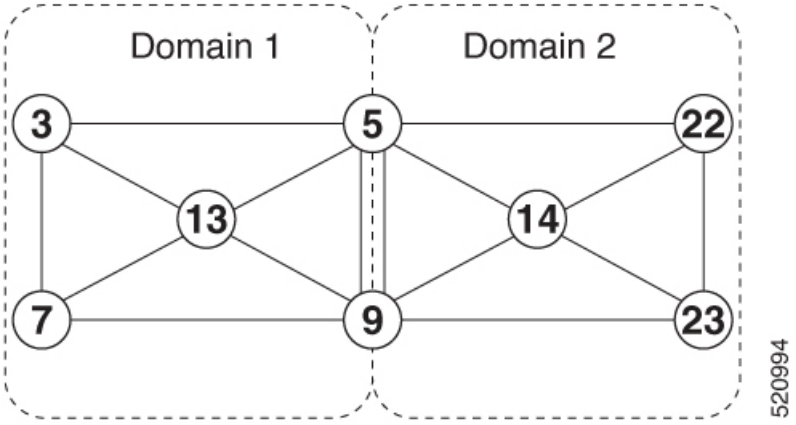
Information about Advertisement of Loopback Prefix SIDs of a Border Router in Multiple ISIS Domains

Overview of the Advertisement of Loopback Prefix SIDs of a Border Router in Multiple ISIS Domains

In a segment routing deployment having multiple ISIS domains, it would be beneficial if a border router advertises loopback interface prefixes and prefix SIDs in each associated domain. With such an advertisement, the routers in each associated domain can communicate with the border router using the same prefixes and prefix SIDs.

This feature provides a border router with the capability to advertise prefixes and prefix SIDs into multiple ISIS routing processes, and thereby, into each associated domain.

For example, in the topology shown in the following diagram, the border routers, Router 5 and Router 9, can advertise their prefixes and prefix SIDs in both Domain 1 and Domain 2. A router in Domain 1, say Router 3, and a router in Domain 2, say Router 22, can use the same prefix SIDs to send traffic to send traffic to either border router.



How to Configure Advertisement of Loopback Prefix SIDs of a Border Router in Multiple ISIS Domains

Configure the Advertisement of Loopback Prefix SIDs of a Border Router in Multiple ISIS Domains

To advertise a loopback prefix and the prefix SID of a border route in multiple ISIS domains, on the border router, issue the **passive-interface** *loopback-interface-name* command to the ISIS routing process for each domain.

```
router isis 1
  passive-interface loopback 0
router isis 2
  passive-interface loopback 0
```

Verify the Advertisement of Loopback Prefix SIDs of a Border Router in Multiple ISIS Domains

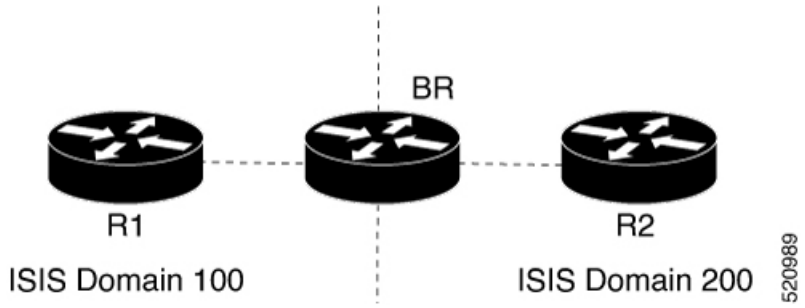
```
Router#show isis database verbose

Tag 1:
IS-IS Level-1 Link State Database:
LSPID                 LSP Seq Num  LSP Checksum  LSP Holdtime/Rcvd      ATT/P/OL
Router.00-00        * 0x00000013   0xDCD8                469/*         0/0/0
  Area Address: 49.0001
  NLPID:        0xCC
  Router CAP:   10.0.0.0, D:0, S:0
    Segment Routing: I:1 V:0, SRGB Base: 16000 Range: 8000
    Segment Routing Local Block: SRLB Base: 15000 Range: 1000
    Segment Routing Algorithms: SPF, Strict-SPF
    Node-MSD
      MSD: 16
  Hostname: Router
  Metric: 0          IP 10.2.2.2/32
    Prefix-attr: X:0 R:0 N:0
  Metric: 0          IP 10.1.1.1/32
    Prefix-attr: X:0 R:0 N:0
    Prefix-SID Index: 1, Algorithm:SPF, R:0 N:1 P:0 E:0 V:0 L:0
IS-IS Level-2 Link State Database:
LSPID                 LSP Seq Num  LSP Checksum  LSP Holdtime/Rcvd      ATT/P/OL
Router.00-00        * 0x00000014   0xDAD9                469/*         0/0/0
  Area Address: 49.0001
  NLPID:        0xCC
  Router CAP:   10.0.0.0, D:0, S:0
    Segment Routing: I:1 V:0, SRGB Base: 16000 Range: 8000
    Segment Routing Local Block: SRLB Base: 15000 Range: 1000
    Segment Routing Algorithms: SPF, Strict-SPF
    Node-MSD
      MSD: 16
  Hostname: Router
  Metric: 0          IP 10.2.2.2/32
    Prefix-attr: X:0 R:0 N:0
  Metric: 0          IP 10.1.1.1/32
    Prefix-attr: X:0 R:0 N:0
    Prefix-SID Index: 1, Algorithm:SPF, R:0 N:1 P:0 E:0 V:0 L:0

Tag 2:
IS-IS Level-1 Link State Database:
LSPID                 LSP Seq Num  LSP Checksum  LSP Holdtime/Rcvd      ATT/P/OL
Router.00-00        * 0x00000012   0xC68A               1179/*         0/0/0
  Area Address: 39.0002
  NLPID:        0xCC
  Router CAP:   10.1.1.1, D:0, S:0
    Segment Routing: I:1 V:0, SRGB Base: 16000 Range: 8000
    Segment Routing Local Block: SRLB Base: 15000 Range: 1000
    Segment Routing Algorithms: SPF, Strict-SPF
    Node-MSD
      MSD: 16
  Hostname: Router
  IP Address:   10.1.1.1
  Metric: 0          IP 10.1.1.1/32
    Prefix-attr: X:0 R:0 N:1
```

```
    Prefix-SID Index: 1, Algorithm:SPF, R:0 N:1 P:0 E:0 V:0 L:0
IS-IS Level-2 Link State Database:
LSPID                 LSP Seq Num  LSP Checksum  LSP Holdtime/Rcvd      ATT/P/OL
Router.00-00        * 0x00000011   0xC889               1184/*         0/0/0
  Area Address: 39.0002
  NLPID:        0xCC
  Router CAP:   10.1.1.1, D:0, S:0
    Segment Routing: I:1 V:0, SRGB Base: 16000 Range: 8000
    Segment Routing Local Block: SRLB Base: 15000 Range: 1000
    Segment Routing Algorithms: SPF, Strict-SPF
    Node-MSD
      MSD: 16
  Hostname: Router
  IP Address:   10.1.1.1
  Metric: 0          IP 10.1.1.1/32
    Prefix-attr: X:0 R:0 N:1
    Prefix-SID Index: 1, Algorithm:SPF, R:0 N:1 P:0 E:0 V:0 L:0
```

Example: Configure Loopback Prefix SIDs of a BR in Multiple ISIS Domains

The following example shows how to configure a BR and the association of a prefix SID in multiple domains.

Consider the following topology in which we have routers R1 and R2 in two different ISIS domains, and a border router BR that belongs to both the domains.



Device	Loopback Address	Prefix SID
R1	10.1.1.1/32	101
R2	10.2.2.2/32	202
BR	10.3.3.3/32	303

The following configuration on the border router BR causes the router to advertise its loopback interface address and the associated prefix SID in both the connected ISIS domains. This configuration example shows the definition of a loopback interface, the association of a prefix SID with the loopback interface, and the advertisement of the loopback interface address and the associated prefix SID in the ISIS domains ISIS 100 and ISIS 200.

```
BR>enable
BR#configure terminal
BR(config)#interface loopback 0
BR(config-if)#ip address 10.3.3.3 255.255.255.255
BR(config-if)#exit
```

```
BR(config)#segment-routing mpls
BR(config-srmpls)#connected-prefix-sid-map
BR(config-srmpls-conn)#address-family ipv4
BR(config-srmpls-conn-af)#10.3.3.3/32 index 303 range 1
BR(config-srmpls-conn-af)#exit-address-family
BR(config-srmpls-conn-af)#end
BR#configure terminal
BR(config)#router isis 100
BR(config-router)#passive-interface loopback 0
BR(config-router)#exit
BR(config)#router isis 200
BR(config-router)#passive-interface loopback 0
BR(config-router)#end
```