



# SRv6 Traffic Engineering

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This chapter describes the commands used to configure and use SRv6 Traffic Engineering.

To use commands of this module, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using any command, contact your AAA administrator for assistance.

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## accounting prefixes ipv6 mode

To enable SRv6 traffic accounting, use the **accounting prefixes ipv6 mode** command in XR Config mode.

```
accounting prefixes ipv6 mode per-prefix per-nextthop srv6-locator
```

| Syntax Description  |   |
|---------------------|---|
| <b>per-prefix</b>   | Enables accounting for every prefix.                      |
| <b>per-nextthop</b> | Enables accounting for every prefix and nextthop.         |
| <b>srv6-locator</b> | Enables accounting only for Segment-routing SRv6 locator. |

| Command Default | None |
|-----------------|------|
|-----------------|------|

| Command Modes | XR Config |
|---------------|-----------|
|---------------|-----------|

| Command History | Release        | Modification                 |
|-----------------|----------------|------------------------------|
|                 | Release 7.10.1 | This command was introduced. |

| Usage Guidelines | No specific guidelines impact the use of this command. |
|------------------|--|
|------------------|--|

The following example shows how to enable SRv6 traffic accounting:

```
Router(config)#accounting prefixes ipv6 mode per-prefix per-nextthop srv6-locators
```

# policy srv6 locator

To create the SRv6-TE policy and configure customized per-policy locator and BSID behavior, use the **policy srv6 locator** command in the SR-TE interface submode.

```
policy policy-name srv6 locator locatorname binding-sid dynamic behavior
ub6-encaps-reduced Binding-SID
```

| Syntax Description                 |  |  |
|------------------------------------|--|--|
| <b>policy</b> <i>policy-name</i>   | Specifies the policy name. The name can be a maximum of 59 characters.   |  |
| <b>locator</b> <i>locator</i>      | Specifies the locator name. The locator name can be a maximum of 64 characters.  |  |
| <b>binding-sid dynamicbehavior</b> | Configures the BSID dynamic behavior.  |  |
| <b>ub6-encaps-reduced</b>          | Configures BSID with reduced encapsulation behavior.<br>Reduces the length of the SRH by excluding the first SID in the IPv6 header. |  |
| <b>ub6-insert-reduced</b>          | Configures BSID with insert reduced behavior.  |  |

**Command Default** None

**Command Modes** SR-TE interface submode

| Command History | Release        | Modification                 |
|-----------------|----------------|------------------------------|
|                 | Release 7.10.1 | This command was introduced. |

**Usage Guidelines** If you don't specify a customized per-policy locator and BSID behavior, the policy uses the global locator and BSID behavior.

The following example shows how to create the SRv6-TE policy and configure customized per-policy locator and BSID behavior:

```
RP/0/RP0/CPU0:ios (config-sr-te) #policy name
RP/0/RP0/CPU0:ios (config-sr-te-policy) #srv6
RP/0/RP0/CPU0:ios (config-sr-te-policy-srv6) #locator loc1 binding-sid dynamic behavior
ub6-encaps-reduced
RP/0/RP0/CPU0:ios (config-sr-te-policy-srv6) #
```

## segment-routing traffic-eng srv6

To configure SRv6-TE, use the **segment-routing srv6** command in the SR-TE interface submode. To disable SRv6-TE, use the **no** form of this command.

```
segment-routing traffic-eng srv6
```

|                           |  |
|---------------------------|--|
| <b>Syntax Description</b> | This command has no keywords or arguments. |
|---------------------------|--|

|                        |      |
|------------------------|------|
| <b>Command Default</b> | None |
|------------------------|------|

|                      |                         |
|----------------------|-------------------------|
| <b>Command Modes</b> | SR-TE interface submode |
|----------------------|-------------------------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 7.10.1 | This command was introduced. |

|                         |  |
|-------------------------|--|
| <b>Usage Guidelines</b> | No specific guidelines impact the use of this command. |
|-------------------------|--|

The following example shows how to configure SRv6-TE.

```
Router (config) #segment-routing traffic-eng
Router (config-sr-te) #srv6
Router (config-sr-te-srv6) #exit
Router (config-sr-te) #
```

## srv6 locator

To configure SRv6-TE locator and binding SID (BSID) behavior, use the **srv6 locator** command in the SR-TE interface submode.

```
Srv6 locator locatorname binding-sid dynamic behavior { ub6-encaps-reduced | ub6-insert-reduced }
```

| Syntax Description | locator <i>locator</i>             | Specifies the locator name. The locator name can be a maximum of 64 characters.  |
|--------------------|------------------------------------|--|
|                    | <b>binding-sid dynamicbehavior</b> | Configures the BSID dynamic behavior.  |
|                    | <b>ub6-encaps-reduced</b>          | Configures BSID with reduced encapsulation behavior.<br>Reduces the length of the SRH by excluding the first SID in the SRH of the pushed IPv6 header. |
|                    | <b>ub6-insert-reduced</b>          | Configures BSID with insert reduced behavior.  |

**Command Default** None

**Command Modes** SR-TE interface submode

| Command History | Release        | Modification                 |
|-----------------|----------------|------------------------------|
|                 | Release 7.10.1 | This command was introduced. |

**Usage Guidelines** If you don't specify a customized per-policy locator and BSID behavior, the policy uses the global locator and BSID behavior.

The following example shows how to configure SRv6-TE locator and binding SID (BSID) behavior.

```
Router#configure
Router(config)#segment-routing traffic-eng
Router(config-sr-te)#srv6 locator loc1 binding-sid dynamic behavior ub6-encaps-reduced
```

## srv6 maximum-sid-depth

To customize the Maximum SID Depth (MSD) signaled by PCC during PCEP session establishment, use the **srv6 maximum-sid-depth** command in SR-TE srv6 submode.

**maximum-sid-depth** *value*

|                           |  |  |
|---------------------------|--|--|
| <b>Syntax Description</b> | <b>maximum-sid-depth</b><br><i>value</i> | Specifies the Maximum SID Depth (MSD) value.<br><br>The MSD is expressed as a number uSIDs. The number of uSID is expressed as a number of carriers and the number of uSID per carrier. The range is from 1-255. |
|---------------------------|--|--|

|                        |      |
|------------------------|------|
| <b>Command Default</b> | None |
|------------------------|------|

|                      |                    |
|----------------------|--------------------|
| <b>Command Modes</b> | SR-TE srv6 submode |
|----------------------|--------------------|

|                        |                |                              |
|------------------------|----------------|------------------------------|
| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|                        | Release 7.10.1 | This command was introduced. |

|                         |  |
|-------------------------|--|
| <b>Usage Guidelines</b> | No specific guidelines impact the use of this command. |
|-------------------------|--|

The following example shows how to customize the MSID:

```
Router(config)#segment-routing traffic-eng
Router(config-sr-te)#srv6
Router(config-sr-te-srv6)#maximum-sid-depth 13
Router(config-sr-te-srv6)#exit
Router(config-sr-te)#
```

## segment-lists segment-list

To configure SRv6 explicit segment list, use the **segment-lists segment-list** command in SR-TE interface submode.

```
segment-lists segment-list name srv6 [ index number sid sid-id | topology-check ]
```

| Syntax Description | Parameter                               | Description  |
|--------------------|---|--|
|                    | <i>name</i>                             | Specifies the name for the segment list.               |
|                    | <b>srv6</b>                             | Enables the SRv6 segment-list configuration.           |
|                    | <b>index</b> <i>number</i>              | Specifies the index number. The range is from 1-65535. |
|                    | <b>sid</b> <i>sid-id</i>                | Specifies the SRv6 SID                                 |
|                    | <b>topology-check</b><br><i>locator</i> | Enables SID verification.                              |

**Command Default** None

**Command Modes** SR-TE interface submode

| Command History | Release        | Modification                 |
|-----------------|----------------|------------------------------|
|                 | Release 7.10.1 | This command was introduced. |

**Usage Guidelines** No specific guidelines impact the use of this command.

The following example shows how to configure SRv6 explicit segment list:

```
Router(config)# segment-routing traffic-eng
Router(config-sr-te) # segment-lists
Router(config-sr-te-segment-lists) # srv6
Router(config-sr-te-sl-global-srv6) # sid-format usid-f3216
Router(config-sr-te-sl-global-srv6) # exit
Router(config-sr-te-segment-lists) # segment-list p1_r8_1
Router(config-sr-te-sl-srv6) # index 10 sid FCBB:BB00:10:feff::
Router(config-sr-te-sl-srv6) # index 15 sid FCBB:BB00:100:fe00::
Router(config-sr-te-sl-srv6) # index 20 sid FCBB:BB00:1::
Router(config-sr-te-sl-srv6) # index 30 sid FCBB:BB00:1:fe00::
Router(config-sr-te-sl-srv6) # index 40 sid FCBB:BB00:fe00::
Router(config-sr-te-sl-srv6) # index 50 sid FCBB:BB00:5::
Router(config-sr-te-sl-srv6) # index 60 sid FCBB:BB00:6::
```

## segment-lists srv6

To enable SID validation globally for all SRv6 explicit segment lists, use the **segment-lists srv6** command in SR-TE interface submode.

```
segment-lists  srv6  [  sid-format  usid-f3216  |  topology-check  ]
```

|                           |  |
|---------------------------|--|
| <b>Syntax Description</b> | <b>sid-format usid-f3216</b> Specifies SID format F3216 micro SID. |
|                           | <b>topology-check</b> Enables SID verification.<br><i>locator</i>  |

**Command Default** None

**Command Modes** SR-TE interface submode

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 7.10.1 | This command was introduced. |

**Usage Guidelines** No specific guidelines impact the use of this command.

The following example shows how to specify SID format for all SRv6 explicit segment lists:

```
Router (config) #segment-routing traffic-eng
Router (config-sr-te) #segment-lists
Router (config-sr-te-segment-lists) #srv6
Router (config-sr-te-sl-global-srv6) #sid-format usid-f3216
Router (config-sr-te-sl-global-srv6) #exit
Router (config-sr-te-segment-lists) #
```

The following example shows how to enable SID verification:

```
Router (config) #segment-routing traffic-eng
Router (config-sr-te) #segment-lists
Router (config-sr-te-segment-lists) #srv6
Router (config-sr-te-sl-global-srv6) #topology-check
Router (config-sr-te-sl-global-srv6) #exit
Router (config-sr-te-segment-lists) #
```