



IETF 101 – London
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SRv6 YANG Model

draft-raza-spring-srv6-yang-01

draft-hu-spring-srv6-yang-00 merged into this revision

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MUST READ !!!

draft-filsfils-spring-srv6-network-programming

Overview

- YANG data model for Segment Routing IPv6 (SRv6) base
 - base framework for configuring and managing an SRv6 subsystem
 - expected to be augmented by other SRv6 technology models accordingly.
- Additional YANG model for SRv6-Static application.
 - allows a user to specify SRv6 [local] SIDs and program them in the forwarding plane

Overview (2)

- New YANG modules:
 - ietf-srv6-types:
 - defines common and basic types related to SRv6
 - ietf-srv6-base:
 - specifies management model for SRv6 base constructs (locator, SIDs, etc.)
 - ietf-srv6-static:
 - specifies management model for SRv6-static application

Base Types

- `srv6-sid`: SRv6 SID type
- `srv6-func-opcode`: SID's FUNC opcode typedef
- `srv6-endpoint-type`: SRv6 Endpoint behaviors types identity
- `srv6-transit-type`: SRv6 Transit behavior types enum
- `srv6-security-rule-type`: SRv6 Security rule types enum
- `srv6-counter-type`: SRv6 Counter types enum

Base Config

```
module: ietf-srv6-base
augment /rt:routing:
  +--rw srv6
    +--rw enable?                boolean
    +--rw encapsulation
      | +--rw source-address?    inet:ipv6-address
      | +--rw ip-ttl-propagation? boolean
    +--rw locators
      +--rw locator* [name]
        +--rw name                string
        +--rw enable?            boolean
        +--rw is-default         boolean
        +--rw prefix
          +--rw address          inet:ipv6-address
          +--rw length           srv6-types:srv6-locator-len
```

Base State

```
module: ietf-srv6-base
augment /rt:routing:
  +--rw srv6
    +--ro node-capabilities
    |
    |  +-- ...
    |  +-- ...
    |
    +--rw locators
    |
    |  +--rw locator* [name]
    |  |   +--rw name          string
    |  |   +-- ...
    |  |   +-- ...
    |
    +--ro local-sids
    |
    |  +--ro ....
    |  +--ro ....
    |  +--ro local-sid* [sid]
    |  |   +--ro sid          srv6-types:srv6-sid
    |  |   +--ro ...
    |  |   +--ro ...
```

Base State: Node Capabilities

```
module: ietf-srv6-base
augment /rt:routing:
  +--rw srv6
    +--ro node-capabilities
      +--ro end-behavior* [type]
        | +--ro type          identityref
        | +--ro supported    boolean
      +--ro transit-behavior* [type]
        | +--ro type          srvo-types:srv6-transit-type
        | +--ro supported    boolean
      +--ro signaled-parameters
        | +--ro max-sl?      uint8
        | +--ro max-end-pop-srh?  uint8
        | +--ro max-t_insert?  uint8
        | +--ro max-t_encap?   uint8
        | +--ro max-end d?    uint8
      +--ro security-rule* [type]
        | +--ro type          srvo-types:srv6-security-rule-type
        | +--ro supported    boolean
      +--ro counters* [type]
        | +--ro type          srvo-types:srv6-counter-type
        | +--ro supported    boolean
```


Base State : Locators

```
module: ietf-srv6-base
augment /rt:routing:
  +--rw srv6
    +--rw locators
      +--rw locator* [name]
        +--rw name string
        +--ro operational-status? srv6-types:srv6-status-type
        +--ro is-in-address-conflict? boolean
```

Base State: SIDs

```
module: ietf-srv6-base
augment /rt:routing:
  +--rw srv6
    +--ro local-sids
      +--ro counters
        +--ro cnt3
          +--ro in-pkts? yang:counter64
          +--ro in-octets? yang:counter64
      +--ro local-sid* [sid]
        +--ro sid srv6-types:srv6-sid
        +--ro locator-ref? -> /rt:routing/srv6:srv6/locators/locator/name
        +--ro is-reserved? boolean
        +--ro end-behavior-type? identityref
        +--ro alloc-type? srv6-types:sid-alloc-type
        +--ro owner* [type instance]
          +--ro type identityref
          +--ro instance string
          +--ro is-winner? boolean
        +--ro forwarding
          +--ro is-installed? boolean
          +--ro next-hop-type? srv6-types:srv6-next-hop-type
          +--ro paths
            +--ro path* [path-index]
              +--ro path-index uint8
              +--ro l2
                +--ro interface? if:interface-ref
              +--ro l3
                +--ro interface? if:interface-ref
                +--ro next-hop? inet:ip-address
                +--ro weight? uint32
                +--ro role? enumeration
                +--ro backup-path-index? uint8
              +--ro (encap-type)?
                +--:(srv6)
                | +--ro out-sid* [sid]
                | +--ro sid srv6-types:srv6-sid
                +--:(mpls)
                +--ro out-label* [label]
                +--ro label rt-types:mpls-label
        +--ro counters
          +--ro cnt1
            +--ro in-pkts? yang:counter64
            +--ro in-octets? yang:counter64
```

Base Notifications

```
module: ietf-srv6-base
```

```
notifications:
```

```
+---n srv6-locator-status-event
|   +--ro operational-status?  srv6-types:srv6-status-type
|   +--ro locator-ref?         -> /rt:routing/srv6:srv6/locators/locator/name
+---n srv6-sid-collision-event
    +--ro sid:                  srv6-types:srv6-sid
    +--ro existing
    |   +--ro end-behavior-type?  identityref
    +--ro requested
        +--ro end-behavior-type?  identityref
```

Static Config

```
module: ietf-srv6-static
augment /rt:routing/srv6:srv6/srv6:locators/srv6:locator: ←
  +--rw static
    +--rw local-sids
      +--rw sid* [opcode]
        +--rw opcode
        +--rw end-behavior-type identityref
        +--rw <endpoint-type> ← e.g. endx_psp, end_dx4, end_b6, end_bm
        +--rw ...
        +--rw ...
        +--rw paths ← not applicable for some types
          +--rw path* [path-index]
            +--rw path-index uint8
            +--rw interface? if:interface-ref
            +--rw next-hop? inet:ipv6-address
            +--rw weight? uint32
            +--rw role? enumeration
            +--rw backup-path-index? uint8
            +--rw encap
              +--rw out-sid* [sid]
                +--rw sid srv6-types:srv6-sid ← Could also be MPLS encap
```

Draft: Next Steps

- Complete Pending Items (listed under section 5)
- Seeking WG input and feedback