IETF 123 – Madrid
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Update on SRv6 YANG

draft-ietf-spring-srv6-yang-05

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Draft Overview (draft-ietf-spring-srv6-yang)

- 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
- Focus:
  - SRv6 Network Programming – RFC 8986
  - SRH – RFC 8754
  - SRv6 Compressed SIDlist – RFC 9800

Draft History

- Last Presented: @ IETF 106 (draft-raza-spring-srv6-yang-05)
- WG adoption: Post IETF 108
- Several intermittent updates since then
    - Ongoing Alignment with RFC8986/8754, Addition of CSID, SID Structure/Format
    - Latest update pushed in July 2025 – rev -05
- No formal [early] reviews by YANG DOCTORS yet

YANG model - Recap

- YANG modules:
  a) ietf-srv6-types: defines common and basic types related to SRv6
  b) ietf-srv6-base: specifies management model for SRv6 base constructs (locator, SIDs, etc.)
  c) ietf-srv6-static: specifies management model for SRv6-static application
    a) **Not a focus of today's update**
- The modules conform to the Network Management Datastore Architecture (NMDA) defined in [RFC8342]

(a) ietf-srv6-types module

- Locator attributes
- SID attributes and definitions
    - Behavior types:
        - Endpoint: End*
        - Headend: H.Encaps*, H.Encaps.L2*
    - SID Structure
    - Compression type
    - SID Format (identity)
        - srv6-sid-fmt-uc*
        - srv6-sid-fmt-cnext*
        - srv6-sid-fmt-crepl* (TBD)
- Other definitions and types:
    - Security types
    - Counter types

(b) ietf-srv6-base module

- augments SR "/rt:routing:/sr:segment-routing" [RFC9020]
- defines the following constructs for managing SRv6 building blocks:
  - Configuration, Operational State, Notifications
- conforms to the Network Management Datastore Architecture (NMDA) defined in [RFC8342].

(b) ietf-srv6-base module - Config

```
augment /rt:routing/sr:segment-routing:

 +--rw srv6
   |
   +--rw enable?          Boolean
   |
   +--rw encapsulation
         >> SA, HopLimit, Traffic-class
   |
   +--rw sid-formats
   | +--rw format* [type]
   |   +--rw type          identityref
        >> uncompressed-xx, csid-next-16, csid-replace-xyz
   |
   +--rw locators
   | +--rw locator* [name]
        >> enable, format, prefix, algo, anycast, ..
   |
   +--rw sids
        >> holdtime, ..
```

(b) ietf-srv6-base module - Oper

```
augment /rt:routing/sr:segment-routing:

  +--rw srv6
    |
    +--ro node-capabilities
        >> end-behaviors, headend-behaviors, msd, security-rules, counter-types
    |
    +--rw sid-formats
    | +--rw format* [type]
        >> compression-type, description, sid-structure
    |
    +--rw locators
    | +--rw locator* [name]
        >> name, oper state, remote locator traffic-accounting,
    |
    +--rw sids
        >> counters, summary
      +--ro sid* [sid]
        >> behavior, locator-ref, allocation info, forwarding info (per-path). counters
```

(b) ietf-srv6-base module - Notif

notifications:

+---n **srv6-locator-status-event**

>> operational-status, locator-ref

|

+---n **srv6-sid-collision-event**

>> sid, existing (behavior, owner), requested (behavior, requester)

.

(c) ietf-srv6-static module

- augments "/rt:routing/sr:segment-routing/srv6:srv6/srv6:locators/srv6:locator” (SRv6 base locator)
- allows static (explicit) configuration for locally instantiated SIDs from a given locator.
- defines the config constructs for managing SRv6 static SIDs:
  - The Operational State and Notifications for these SIDs come from srv6-base
- No significant change done to this module since last presented

(c) ietf-srv6-static module - Config

```
augment /rt:routing/sr:segment-routing/srv6:srv6/srv6:locators/srv6:locator:

  +--rw static
     +--rw sids
        +--rw sid* [function]
             >> end-behavior-type
           …
           +--rw <behaivor-type>
              +--rw <behaivor-specific-params>

   e.g.
           +--rw end-x* (psp, usp, usd, psp_usd, usp_usd, psp_usp_usd ..)
           |  +--rw paths
           |     +--rw path* [path-index]
           |        +--rw path-index          uint8
           |        +--rw interface?          if:interface-ref
           |        +--rw next-hop?           inet:ipv6-address
           ….
          +--rw end-dt6
           |  +--rw lookup-table-ipv6    srv6-types:table-id
           +--rw end-dt4
           |  +--rw lookup-table-ipv4    srv6-types:table-id
           +--rw end-dt46
              +--rw lookup-table-ipv4    srv6-types:table-id
              +--rw lookup-table-ipv6    srv6-types:table-id
```

Pending / Open Items

- Model:
  - srv6-types: IANA maintained module for SRv6 Endpoint types
  - srv6-base: REPLACE-CSID additions and updates
  - srv6-static: Extend ”SRv6-static” model to support CSID
- Document:
  - Discuss and clean up the “Pending Items” section

Next Steps and Asks

- Authors are soliciting WG feedback and comments on the model
- For faster progress of Base model, authors propose to split the document into two separate documents:
  - SRv6 base YANG data model
  - SRv6 static YANG data model
- Authors to address the open items and gaps in srv6-base module
- Afterwards, authors request chairs to initiate an early YANG DOCTORS review on SRv6 base modules