

RIFT YANG

draft-ietf-rift-yang

RIFT WG

IETF108

Sandy Zhang
Yuehua Wei
Shaowen Ma
Xufeng Liu

RIFT YANG

- This data model is defined according to [draft-ietf-rift-rift].
- This model includes protocol configuration, state information, some notifications. Some features are added to enhance protocol.
- Acknowledgement to Bruno Rijsman, Tony Przygienda for their detailed review and comments.

RIFT YANG update 01 version

- Editorial modification according to RFC8407.
- YANG model updates according implementation experience.
- The 01 version is not the final version. It'll be updated again in a few days.

RIFT configuration

```
module: ietf-rift
  augment /rt:routing/rt:control-plane-protocols/rt:control-plane-
  protocol:
    +--rw rift!
      +--rw node* [name]
        +--rw name          string
        +--rw system-id     system-id
        +--rw pod?          uint32
        +--rw configured-level? level
        +--rw overload?     boolean
        +--rw flood-reduction? boolean
        +--rw nonce-increasing-interval? uint16
        +--rw maximum-nonce-delta?   uint8 {nonce-delta-adjust}?
        +--rw rx-lie-multicast-address
          | +--rw ipv4? inet:ipv4-address
          | +--rw ipv6? inet:ipv6-address
        +--rw tx-lie-multicast-address
          | +--rw ipv4? inet:ipv4-address
          | +--rw ipv6? inet:ipv6-address
        +--rw lie-tx-port?   inet:port-number
        +--rw global-link-capabilities
          | +--rw bfd?      boolean
          | +--rw v4-forwarding-capable? boolean
        +--rw rx-flood-port?   inet:port-number
        +--rw holdtime?       rt-types:timer-value-seconds16
        +--rw tide-generation-interval? rt-types:timer-value-seconds16
        +--rw tie-security-key-id?   uint32
          .....
```

- Multiple RIFT instances supported
- Keys to the nodes: name, system-id, level, etc.
- Configurable variables: pod, level, flood-reduction, link-capabilities, timers, security items, etc.
- Especial configuration: different multicast address or port can be used for different instances, etc.

```
.....
+--rw interface* [name]
  | +--rw name          if:interface-ref
  | +--rw cost?        uint32
  | +--rw advertised-source-addresses
  | | +--rw ipv4?   inet:ipv4-address
  | | +--rw ipv6?   inet:ipv6-address
  | +--rw link-capabilities
  | | +--rw bfd?      boolean
  | | +--rw v4-forwarding-capable? boolean
+--rw (algorithm-type)?
  | +--:(spf)
  | +--:(all-path)
+--rw instance-label?   uint32
```

RIFT state

```
module: ietf-rift
augment /rt:routing/rt:control-plane-protocols/rt:control-
plane-protocol:
  +--rw rift!
    +--rw node* [name]
      +--rw name          string
      +--ro level?       level
      +--ro protocol-minor-version  uint16
      +--ro hierarchy-indications?  enumeration
      +--rw interface* [name]
        .....
      | +--ro state          enumeration
      | +--ro neighbor
        .....
      +--ro miscabled-links*  linkid-type
      +--ro hal?              level
      +--ro database
      | +--ro ties* [direction-type originator tie-type tie-number]
        .....
      +--ro kv-store
        .....
```

Except all the read-write nodes, there are many nodes that can only be read, such as the level and version of the node, state, neighbor, database, etc.

```
| +--ro neighbor
  | +--ro name?          string
  | +--ro level?        level
  | +--ro system-id     system-id
  | +--ro pod?          uint32
  | +--ro protocol-version?  uint16
  | +--ro address-families
  | | +--ro address-family* [address-family]
  | |   +--ro address-family  iana-rt-types:address-family
  | +--ro received-source-addresses
  | | +--ro ipv4?  inet:ipv4-address
  | | +--ro ipv6?  inet:ipv6-address
  | +--ro remote-id?          uint32
  | +--ro cost?               uint32
  | +--ro bandwidth?         uint32
  | +--ro flood-reduction?    boolean
  | +--ro sent-offer
  | | +--ro level?          level
  | | +--ro not-a-ztp-offer?  boolean
  | +--ro received-offer
  | | +--ro level?          level
  | | +--ro not-a-ztp-offer?  boolean
  | | +--ro best?           boolean
  | | +--ro removed-from-consideration?  boolean
  | | +--ro removal-reason?  string
  | +--ro received-link-capabilities
  | | +--ro bfd?            boolean
  | | +--ro v4-forwarding-capable?  boolean
  | +--ro received-in-lies
  | | +--ro you-are-flood-repeater?  boolean
  | | +--ro not-a-ztp-offer?          boolean
  | | +--ro you-are-sending-too-quickly?  boolean
  | +--ro tx-flood-port?          inet:port-number
  | +--ro bfd-up?                 boolean
  | +--ro outer-security-key-id?  uint8
```

+--ro database

```
| +--ro ties* [direction-type originator tie-type tie-number]
|   +--ro direction-type    enumeration
|   +--ro originator        system-id
|   +--ro tie-type          enumeration
|   +--ro tie-number        uint32
|   +--ro seq?              uint64
|   +--ro origination-time? uint32
|   +--ro origination-lifetime? uint32
|   +--ro node
|     | +--ro name?          string
|     | +--ro level?         level
|     | +--ro system-id      system-id
|     | +--ro pod?           uint32
|     | +--ro flood-reduction? boolean
|     | +--ro overload?      boolean
|     | +--ro startup-time?  uint64
|     | +--ro miscabled-links* linkid-type
|   +--ro prefix
|     +--ro prefix?          inet:ip-prefix
|     +--ro (type)?
|       | +--:(prefix)
|       | +--:(positive-disaggregation)
|       | +--:(negative-disaggregation)
|       | +--:(external)
|       | +--:(positive-external-disaggregation)
|       | +--:(pgp)
|     +--ro metric?          uint32
|     +--ro tags*            uint64
|     +--ro monotonic-clock
|       | +--ro prefix-sequence-type
|       |   +--ro timestamp    ieee802-1as-timestamp-type
|       |   +--ro transaction-id? uint8
|     +--ro loopback?        boolean
|     +--ro directly-attached? boolean
|     +--ro from-link?       linkid-type
```

RIFT state

+--ro kv-store

```
+--ro kvs* [kvs-index]
  +--ro kvs-index  uint32
  +--ro kvs-tie
    +--ro direction-type?  enumeration
    +--ro originator?      system-id
    +--ro tie-type?         enumeration
    +--ro tie-number?      uint32
    +--ro seq?              uint64
    +--ro origination-time? uint32
    +--ro origination-lifetime? uint32
  +--ro key-value
    +--ro key?  uint16
    +--ro value? uint32
```

RIFT notification

Unexpected TIE and neighbor's error should be notified.

notifications:

```
+---n error-set
  +--ro tie-level-error
  | +--ro direction-type?    enumeration
  | +--ro originator?       system-id
  | +--ro tie-type?         enumeration
  | +--ro tie-number?       uint32
  | +--ro seq?              uint64
  | +--ro origination-time?  uint32
  | +--ro origination-lifetime? uint32
  +--ro neighbor-error
    +--ro neighbor* [system-id]
      +--ro name?           string
      +--ro level?          level
      +--ro system-id       system-id
      +--ro pod?            uint32
      +--ro protocol-version? uint16
      +--ro address-families
          .....
      +--ro received-source-addresses
          .....
      +--ro remote-id?      uint32
      +--ro cost?           uint32
      +--ro bandwidth?      uint32
      +--ro flood-reduction? boolean
      +--ro sent-offer
          .....
      +--ro received-offer
          .....
      +--ro received-link-capabilities
          .....
      +--ro received-in-lies
          .....
      +--ro tx-flood-port?  inet:port-number
      +--ro bfd-up?         boolean
      +--ro outer-security-key-id? uint8
```

- Any comments welcomed 😊

Thanks!