

draft-litkowski-isis-yang-isis-cfg

IETF 90 - Toronto

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Introduction

- Goal :
 - Define a standardized model for ISIS configuration and operation
- Use case :
 - Unified provisioning system between vendors
 - Unified way to collect ISIS protocol informations (computation times, events ...)
- As a SP, we are clearly looking at such solution !

Introduction

- Was first published as draft-litkowski-netmod-isis-cfg
- Netmod chairs and AD decided that it would be better to manage the draft in ISIS WG (where ISIS experts are) and YANG doctor would help for YANG definition
 - Draft renamed to draft-litkowski-isis-yang-isis-cfg
- Draft is inline with ietf-routing definitions (CORE routing model)

Main trees : configuration

augment

/rt:routing/rt:routing-instance/rt:routing-protocols/rt:routing-protocol:

```
+--rw isis
  +--rw isis-level?          isis-level
  +--rw nsap-address         simple-iso-address
  +--rw ipv4-router-id?     inet:ipv4-address
  +--rw ipv6-router-id?     inet:ipv6-address
  +--rw reference-bandwidth? uint32
  +--rw lsp-mtu?            uint16
  +--rw lsp-lifetime?       uint16
  +--rw lsp-refresh?        uint16
  +--rw psnp-authentication? boolean
  +--rw csnp-authentication? boolean
  +--rw hello-authentication? boolean
  +--rw authentication-key? string
  +--rw authentication-type? enumeration
  +--rw isis-multi-topology-cfg
    | +--rw ipv4-unicast?    boolean
    | +--rw ipv6-unicast?    boolean
    | +--rw ipv4-multicast?  boolean
    | +--rw ipv6-multicast?  boolean
    | ...
  +--rw isis-level-1-cfg ←
    | ...
  +--rw isis-level-2-cfg ←
    | ...
  +--rw overload
    | +--rw status?         boolean
    | +--rw timeout?        uint16
  +--rw interfaces
    +--rw interface* [name]
```

Level specific configuration

Interface-specific configuration

Main trees : configuration (cont.)

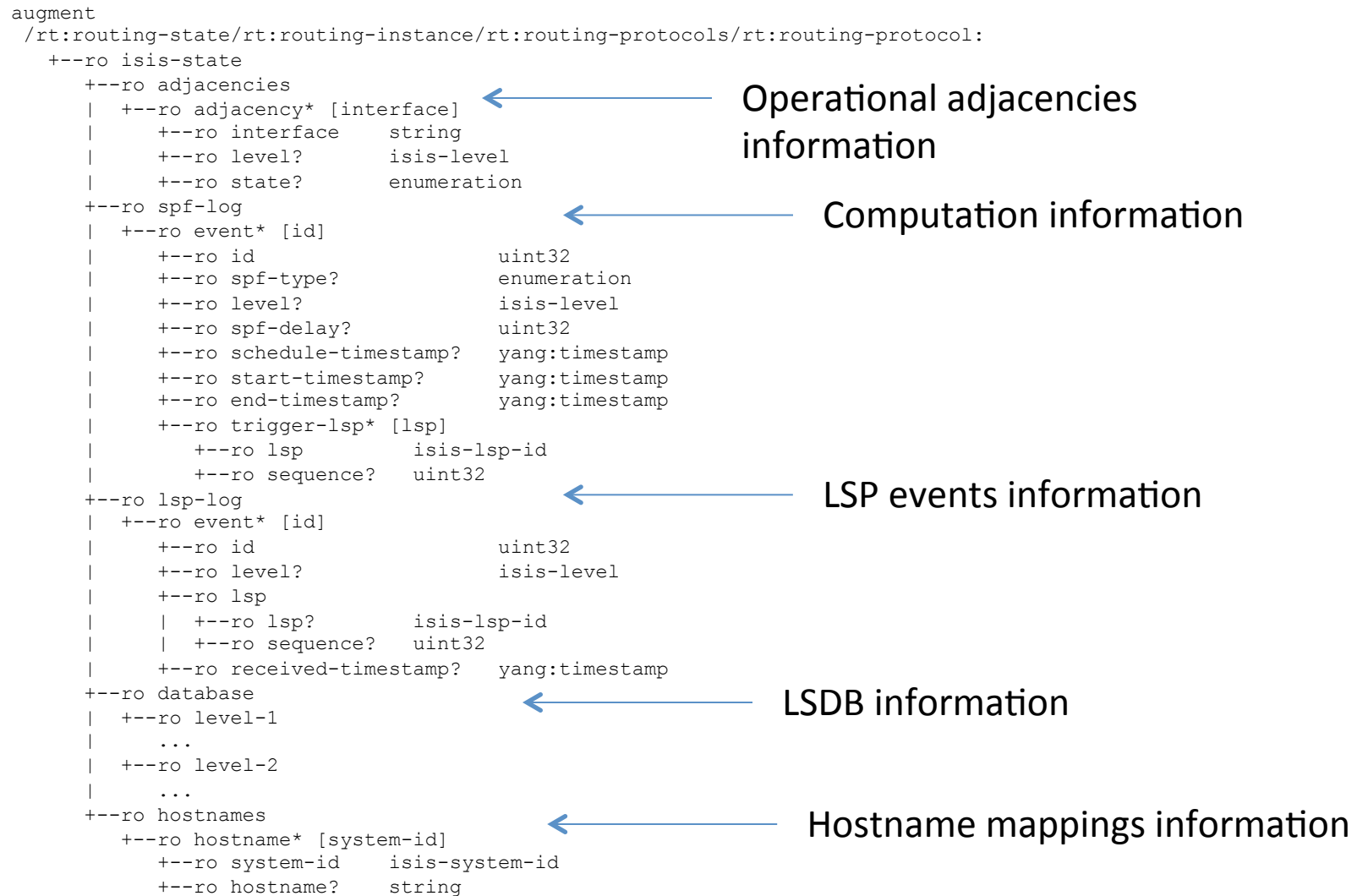
<code>+--rw isis-level-1-cfg</code>		
<code>+--rw enabled?</code>	<code>boolean</code>	Per level configuration
<code>+--rw psnp-authentication?</code>	<code>boolean</code>	
<code>+--rw csnp-authentication?</code>	<code>boolean</code>	
<code>+--rw hello-authentication?</code>	<code>boolean</code>	
<code>+--rw authentication-key?</code>	<code>string</code>	
<code>+--rw authentication-type?</code>	<code>enumeration</code>	
<code>+--rw metric-type?</code>	<code>enumeration</code>	
<code>+--rw preference?</code>	<code>uint8</code>	
<code>+--rw external-preference?</code>	<code>uint8</code>	
<code>+--rw default-ipv4-unicast-metric?</code>	<code>isis-wide-metric</code>	
<code>+--rw default-ipv6-unicast-metric?</code>	<code>isis-wide-metric</code>	
<code>+--rw default-ipv4-multicast-metric?</code>	<code>isis-wide-metric</code>	
<code>+--rw default-ipv6-multicast-metric?</code>	<code>isis-wide-metric</code>	
<code>+--rw isis-level-2-cfg</code>		
<code>+--rw enabled?</code>	<code>boolean</code>	
<code>+--rw psnp-authentication?</code>	<code>boolean</code>	
<code>+--rw csnp-authentication?</code>	<code>boolean</code>	
<code>+--rw hello-authentication?</code>	<code>boolean</code>	
<code>+--rw authentication-key?</code>	<code>string</code>	
<code>+--rw authentication-type?</code>	<code>enumeration</code>	
<code>+--rw metric-type?</code>	<code>enumeration</code>	
<code>+--rw preference?</code>	<code>uint8</code>	
<code>+--rw external-preference?</code>	<code>uint8</code>	
<code>+--rw default-ipv4-unicast-metric?</code>	<code>isis-wide-metric</code>	
<code>+--rw default-ipv6-unicast-metric?</code>	<code>isis-wide-metric</code>	
<code>+--rw default-ipv4-multicast-metric?</code>	<code>isis-wide-metric</code>	
<code>+--rw default-ipv6-multicast-metric?</code>	<code>isis-wide-metric</code>	

Main trees : configuration (cont.)

```
+--rw interfaces
  +--rw interface* [name]
    +--rw name leafref
    +--rw level? isis-level
    +--rw lsp-interval? uint16
    +--rw passive? boolean
    +--rw csnp-interval? uint16
    +--rw hello-authentication-type? enumeration
    +--rw hello-authentication-key? string
    +--rw hello-interval? uint16
    +--rw hello-multiplier? uint16
    +--rw hello-padding? boolean
    +--rw ipv4-unicast? boolean
    +--rw ipv6-unicast? boolean
    +--rw ipv4-multicast? boolean
    +--rw ipv6-multicast? boolean
    +--rw interface-type? enumeration
    +--rw enabled? boolean
    +--rw tag* uint32
    +--rw level-1
      | +--rw hello-authentication-type? enumeration
      | +--rw hello-authentication-key? string
      | +--rw hello-interval? uint16
      | +--rw hello-multiplier? uint16
      | +--rw ipv4-unicast? boolean
      | +--rw ipv6-unicast? boolean
      | +--rw ipv4-multicast? boolean
      | +--rw ipv6-multicast? boolean
      | +--rw priority? uint8
      | +--rw ipv4-unicast-metric? isis-wide-metric
      | +--rw ipv6-unicast-metric? isis-wide-metric
      | +--rw ipv4-multicast-metric? isis-wide-metric
      | +--rw ipv6-multicast-metric? isis-wide-metric
      | +--rw passive? boolean
    +--rw level-2
      ...
```

Per interface configuration

Main trees : operational states




Main trees : operational states

```
augment /rt:routing-state/rt:ribs/rt:rib/rt:routes/rt:route:  
  +--ro metric?      uint32  
  +--ro tag*         uint32  
  +--ro route-type? enumeration
```

```
augment /rt:active-route/rt:output/rt:route:  
  +--ro metric?      uint32  
  +--ro tag*         uint32  
  +--ro route-type? enumeration
```

Add ISIS specific
informations to
routes



Main trees : RPC operations

```
rpcs:
+---x clear-isis-adjacency
|   +--ro input
|       +--ro routing-instance-name          rt:routing-instance-state-ref
|       +--ro routing-protocol-instance-name isis-instance-state-ref
|       +--ro isis-level?                   isis-level
|       +--ro interface?                    string
+---x clear-isis-database
    +--ro input
        +--ro routing-instance-name          rt:routing-instance-state-ref
        +--ro routing-protocol-instance-name isis-instance-state-ref
        +--ro isis-level?                   isis-level
```

Clear all or some ISIS adjacencies

Clear all or some LSDBs

Security considerations section addresses security issue introduced by such RPC
(Access control required)

Main trees : notifications

notifications:

```
+---n isis-adjacency-updown
  +--ro interface?          string
  +--ro neighbor?          string
  +--ro neighbor-system-id? isis-system-id
  +--ro isis-level?        isis-level
  +--ro state?             enumeration
  +--ro reason?            string
```

A notification can be used to receive adjacency state change events

Feedbacks

- YANG structure/langage sounds now better thanks to Netmod WG & YANG doctor
 - Version -01 is now fixing YANG specific part
 - RPC reply attached in APPENDIX
- ISIS specifics :
 - Discussion of naming of containers for LSDB model : use TLVxxx or more explicit names
 - Current version uses explicit names but points to TLV reference in description

What's next ?

- Look at feedback on the current proposed model from ISIS point of view :
 - What are the missing informations ?
 - Is the model organization OK for implementors ?
 - Need to agree on defaults, possibly feature specific containers, conditional leafs ...
- Looking at co-authors ...
- Could we consider this work as WG item ?