

YANG Data model for BIER

draft-chh-bier-bier-yang

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Goals

- Define the BIER data model
- Help for product implementation for BIER

Changes from -01 to -02

- Took into account WG comments since last IETF.
- Ask YANG DOCTOR-Giles Heron to review our draft.
 - Put ipv4-bier-prefix and ipv6-bier-prefix as leaves at the top level in config container and state container.
 - Add a typedef for mt-id and an IGP Type per sub-domain.
 - Use grouping “bier-parameters” to define the bier global parameters.

Changes from -01 to -02

- Check the bier-global containers for config and state, and add encapsulation type, bitstring length and frr in the state container.
- Still put the ipv4* [bitstringlength bier-mpls-label base] and ipv6* [bitstringlength bier-mpls-label base] under the AF in config container, but put the ipv4* [bitstringlength bier-mpls-label-base] and ipv6* [bitstringlength bier-mpls-label-base] as leaves at the top level in state container.
- Use “when” statements to define augment of the routing protocols.

Changes from -01 to -02

- Rename "mt-ospf" and "mt-isis" to "bier-ospf-cfg" and "bier-isis-cfg".
- Use grouping "bier-mpls-cfg" to define the mpls encapsulation.
- Use grouping "bier-protocol-extensions" for OSPF and ISIS extension.
- Update the content of the birt-si list.
- Rename "birt-subdomain" to "birt".

Changes from -01 to -02

- Use the Yangvalidator site to validate our draft, there are some errors:

ietf-bier.yang

Extraction

```
No warnings or errors
```

Validation

```
ietf-bier.yang:15: error: module "ietf-mpls" not found in search path
ietf-bier.yang:19: error: module "ietf-isis" not found in search path
ietf-bier.yang:23: error: module "ietf-ospf" not found in search path
```

- After discussing with YANG doctor, we think the reason is that the validator is looking for imported modules (ietf-mpls, ietf-isis, and ietf-ospf). And since they are not formally published (yet) we don't have them in the local repository on the validator site.

Data Configure Tree Structure

```
module: ietf-bier
augment /rt:routing:
  +--rw bier
    +--rw bier-global
      +--rw encapsulation-type?  identityref
      +--rw bitstringlength?     bsl
      +--rw bfr-id?              bfr-id
      +--rw ipv4-bfr-prefix?     inet:ipv4-prefix
      +--rw ipv6-bfr-prefix?     inet:ipv6-prefix
      +--rw sub-domain* [sub-domain-id]
        +--rw sub-domain-id      sub-domain-id
        +--rw igp-type?          igp-type
        +--rw mt-id?             mt-id
        +--rw bfr-id?            bfr-id
        +--rw frr?               boolean
        +--rw bitstringlength?   bsl
        +--rw af
          +--rw ipv4* [bitstringlength bier-mpls-label-base]
            | +--rw bitstringlength      uint16
            | +--rw bier-mpls-label-base  mpls:mpls-label
            | +--rw bier-mpls-label-range-size?  bier-mpls-label-range-size
          +--rw ipv6* [bitstringlength bier-mpls-label-base]
            +--rw bitstringlength      uint16
            +--rw bier-mpls-label-base  mpls:mpls-label
            +--rw bier-mpls-label-range-size?  bier-mpls-label-range-size
```

Control Plane Configuration

- Protocol extensions:

```
augment /rt:routing/rt:routing-instance/rt:routing-protocols
  /rt:routing-protocol/ospf:ospf/ospf:instance:
  +--rw bier-ospf-cfg
    +--rw mt-id          mt-id
    +--rw bier-global
      +--rw enable?     boolean
      +--rw advertise?  boolean
      +--rw receive?    boolean
```

```
augment /rt:routing/rt:routing-instance/rt:routing-protocols
  /rt:routing-protocol/isis:isis/isis:instance:
  +--rw bier-isis-cfg
    +--rw mt-id          mt-id
    +--rw bier-global
      +--rw enable?     boolean
      +--rw advertise?  boolean
      +--rw receive?    boolean
```


Operational State Structure

```
augment /rt:routing-state:
+--ro bier-global
| +--ro encapsulation-type?   identityref
| +--ro bitstringlength?     bsl
| +--ro bfr-id?              bfr-id
| +--ro ipv4-bfr-prefix?     inet:ipv4-prefix
| +--ro ipv6-bfr-prefix?     inet:ipv6-prefix
| +--ro sub-domain* [sub-domain-id]
|   +--ro sub-domain-id      sub-domain-id
|   +--ro igp-type           igp-type
|   +--ro mt-id?             mt-id
|   +--ro bfr-id?            bfr-id
|   +--ro frr?               boolean
|   +--rw bitstringlength?   bsl
|   +--ro ipv4* [bitstringlength bier-mpls-label-base]
|     | +--ro bitstringlength      uint16
|     | +--ro bier-mpls-label-base  mpls:mpls-label
|     | +--ro bier-mpls-label-range-size? bier-mpls-label-range-size
|   +--ro ipv6* [bitstringlength bier-mpls-label-base]
|     +--ro bitstringlength      uint16
|     +--ro bier-mpls-label-base  mpls:mpls-label
|     +--ro bier-mpls-label-range-size? bier-mpls-label-range-size
+--ro birts
  +--ro birt* [sub-domain-id]
    +--ro sub-domain-id          sub-domain-id
    +--ro birt-bitstringlength* [bitstringlength]
      +--ro bitstringlength      uint16
      +--ro birt-si* [si]
        +--ro si                  si
        +--ro f-bm?               uint16
        +--ro bier-mpls-in-label? mpls:mpls-label
        +--ro bfr-nbr?            inet:ip-address
        +--ro bier-mpls-out-label? mpls:mpls-label
```

Notifications

```
notifications:
  +---n bfr-id-collision
  |   +--ro bfr-id?    bfr-id
  +---n bfr-zero
  |   +--ro ipv4-bfr-prefix?    inet:ipv4-prefix
  |   +--ro ipv6-bfr-prefix?    inet:ipv6-prefix
  +---n sub-domain-id-collision
      +--ro sub-domain-id?    sub-domain-id
      +--ro mt-id?            uint16
```

Next Step

- Comments welcome.
- Ask for WG adoption.

Thanks!