

Draft YANG model for PIM

draft-mcallister-pim-yang-01

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IETF95

Agenda

- Introduction
- Progress
- Open issues
- Next steps

Introduction

- This draft is still under discussion by the YANG multicast design team
- Archive:
<http://www.ietf.org/mail-archive/web/yang-multicast/current/maillist.html>
- Wiki: <http://trac.tools.ietf.org/wg/pim/trac/wiki/yang>
- This draft is versioned on github:
<https://github.com/mcallisterjp/pim-yang/>

Summary of Progress

- Improved usability.
- Added BFD support.
- Revised RP state modeling.
- Added SM state modeling.
- Modeled BIDIR state data.
- Aligned with new version of ietf-routing.

Improved Usability

- Fixed a few consistency issues:
 - Attribute names.
 - Attribute types.
- Use counter64 for statistic counters

Added BFD Support

```
module: ietf-pim-base
augment /rt:routing/rt:routing-protocols:
  +--rw pim
    +--rw interfaces
      +--rw interface* [interface]
        +--rw interface          if:interface-ref
        +--rw address-family* [address-family]
          +--rw address-family    identityref
          +--rw bfd
            | +--rw enabled?                boolean
            | +--rw local-multiplier?       multiplier
            | +--rw (interval-config-type)?
            |   +--:(tx-rx-intervals)
            |   | +--rw desired-min-tx-interval    uint32
            |   | +--rw required-min-rx-interval  uint32
            |   +--:(single-interval)
            |   +--rw min-interval                uint32
```

Revised RP State Modeling

- Supported multiple modes on same RP address.
- Added static RP states.

```
module: ietf-pim-rp
augment /rt:routing-state/rt:routing-protocols/pim-base:pim/pim-
base:address-family:
  +--ro rp
    +--ro static-rp
      | +--ro ipv4-rp* [ipv4-addr]
      | | +--ro ipv4-addr      inet:ipv4-address
      | +--ro ipv6-rp* [ipv6-addr]
      |   +--ro ipv6-addr      inet:ipv6-address
    +--ro rp-list
      | +--ro ipv4-rp* [ipv4-addr mode]
      | | +--ro ipv4-addr      inet:ipv4-address
      | | +--ro mode          identityref
      | | +--ro info-source-addr?  inet:ipv4-address
      | | +--ro info-source-type?  identityref
      | | +--ro up-time?         uint32
      | | +--ro expire?         pim-base:timer-value
      | +--ro ipv6-rp* [ipv6-addr mode]
```

Revised RP State Modeling

- Used identityref instead of enum for info-source-type for exensibility.

```
+--ro rp
  +--ro rp-list
    | +--ro ipv4-rp* [ipv4-addr mode]
    | | +--ro info-source-type? identityref
```

```
identity rp-info-source-type {
  description
    "The information source of an RP.";
}
identity static {
  base rp-info-source-type;
  description
    "The RP is statically configured.";
}
identity bootstrap {
  base rp-info-source-type;
  description
    "The RP is learned from bootstrap.";
}
```


Added SM State Modeling

```
module: ietf-pim-sm
augment /rt:routing-state/rt:routing-protocols/pim-base:pim/pim-
base:address-family:
  +--ro sm
    +--ro asm
      | +--ro anycast-rp!
      | | +--ro ipv4
      | | | +--ro ipv4-anycast-rp* [anycast-addr rp-addr]
      | | |   +--ro anycast-addr    inet:ipv4-address
      | | |   +--ro rp-addr        inet:ipv4-address
      | | +--ro ipv6
      | |   +--ro ipv6-anycast-rp* [anycast-addr rp-addr]
      | |   +--ro anycast-addr    inet:ipv6-address
      | |   +--ro rp-addr        inet:ipv6-address
      | +--ro spt-switch
      |   +--ro infinity! {spt-switch-infinity}?
      |   +--ro policy-name?  string {spt-switch-policy}?
    +--ro ssm!
      +--ro range-poligy?  string
```

Added SM State Modeling

```
augment /rt:routing-state/rt:routing-protocols/pim-base:pim/pim-  
base:interfaces/pim-base:interface/pim-base:address-family:
```

```
  +--ro sm!
```

```
    +--ro passive?   empty
```

```
augment /rt:routing-state/rt:routing-protocols/pim-base:pim/pim-  
base:address-family/pim-rp:rp/pim-rp:static-rp/pim-rp:ipv4-rp:
```

```
  +--ro sm!
```

```
    +--ro policy-name?  string
```

```
    +--ro override?    boolean {static-rp-override}?
```

```
augment /rt:routing-state/rt:routing-protocols/pim-base:pim/pim-  
base:address-family/pim-rp:rp/pim-rp:static-rp/pim-rp:ipv6-rp:
```

```
  +--ro sm!
```

```
    +--ro policy-name?  string
```

```
    +--ro override?    boolean {static-rp-override}?
```

Modeled BIDIR State Data

```
augment /rt:routing-state/rt:routing-protocols/pim-base:pim/pim-  
base:address-family/pim-rp:rp:
```

```
  +--ro bidir
```

```
    +--ro df-election
```

```
      | +--ro ipv4-rp* [ipv4-addr]
```

```
        | | +--ro ipv4-addr      inet:ipv4-address
```

```
      | +--ro ipv6-rp* [ipv6-addr]
```

```
        | +--ro ipv6-addr      inet:ipv6-address
```

```
    +--ro interface-df-election
```

```
      +--ro ipv4-rp* [ipv4-addr interface-name]
```

```
        | +--ro ipv4-addr          inet:ipv4-address
```

```
        | +--ro interface-name     if:interface-ref
```

```
        | +--ro df-address?        inet:ipv4-address
```

```
        | +--ro interface-state?   identityref
```

```
      +--ro ipv6-rp* [ipv6-addr interface-name]
```

```
        +--ro ipv6-addr          inet:ipv6-address
```

```
        +--ro interface-name     if:interface-ref
```

```
        +--ro df-address?        inet:ipv6-address
```

```
        +--ro interface-state?   identityref
```

Aligned with new version of ietf-routing

- Adjusted all PIM module for
ietf-routing@2016-03-09
- Moved the augmentation point for ietf-pim-base
from:
`/rt:routing/rt:routing-instance/rt:routing-protocols/`
to:
`/rt:routing/rt:routing-protocols/`

Open Issues

- Group range mappings
 - It is desirable to index on group range
 - Group range may be specified as arbitrary policy structures

Next Steps

- Continuously align with related models when updates are available:
 - Device model.
 - ietf-routing.
 - BFD.
 - ACL/policy.
 - Operational state modeling paradigm.
- Verify if the model covers all necessary constraints.
- Request further review.