

# YANG Data Model for VRRP

## draft-liu-rtgwg-yang-vrrp-02

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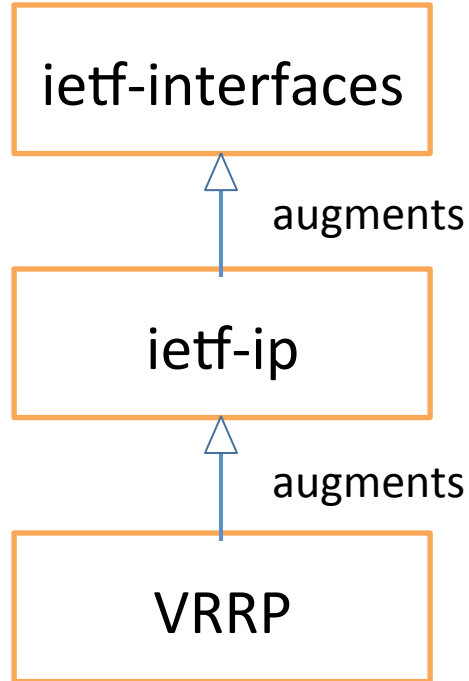
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# Goals

- YANG Data Model for configuring and monitoring the VRRP (Virtual Router Redundancy Protocol)
- Covers configuration, operational states, actions, and notifications.

# Relationship with Other Modules

- Augments ietf-interfaces (RFC7223) and ietf-ip (RFC7277)



# Augmentation

ietf-interfaces

ietf-ip

VRRP

```
+--rw interfaces
|  +--rw interface*
|    +-----rw ipv4
|    |           +-----rw vrrp
|    |           +--rw vrrp-instance*
|    +-----rw ipv6
|    |           +-----rw vrrp
|    |           +--rw vrrp-instance*
+--ro interfaces-state
|  +--ro interface*
|    +-----ro ipv4
|    |           +-----ro vrrp
|    |           +--ro vrrp-instance*
|    +-----ro ipv6
|    |           +-----ro vrrp
|    |           +--ro vrrp-instance*
+-----ro vrrp-global
```

# Configuration for IPv4

```
augment /if:interfaces/if:interface/ip:ipv4:
  +--rw vrrp
    +--rw vrrp-instance* [vrid]
      +--rw vrid                               uint8
      +--rw version?                          enumeration
      +--rw log-state-change?                 boolean
      +--rw preempt!
      |   +--rw hold-time?    uint16
      +--rw priority?                       uint8
      +--rw accept-mode?                     boolean
      +--rw (advertise-interval-choice)?
      |   +--:(v2)
      |   |   +--rw advertise-interval-sec?    uint8
      |   +--:(v3)
      |   +--rw advertise-interval-centi-sec?  uint16
      +--rw virtual-ipv4-addresses
        +--rw virtual-ipv4-address* [ipv4-address]
          +--rw ipv4-address    inet:ipv4-address
```

# Configuration for IPv6

```
augment /if:interfaces/if:interface/ip:ipv6:
  +--rw vrrp
    +--rw vrrp-instance* [vrid]
      +--rw vrid                uint8
      +--rw version?           enumeration
      +--rw log-state-change?  boolean
      +--rw preempt!
      | +--rw hold-time?      uint16
      +--rw priority?         uint8
      +--rw accept-mode?      boolean
      +--rw advertise-interval-centi-sec?  uint16
      +--rw virtual-ipv6-addresses
        +--rw virtual-ipv6-address* [ipv6-address]
          +--rw ipv6-address    inet:ipv6-address
```

# Operational States for IPv4

```
augment /if:interfaces-state/if:interface/ip:ipv4:
  +--ro vrrp
    +--ro vrrp-instance* [vrid]
      +--ro vrid                               uint8
      +--ro version?                           enumeration
      ... ..
      +--ro virtual-ipv4-addresses
        | +--ro virtual-ipv4-address* [ipv4-address]
        |   +--ro ipv4-address                 inet:ipv4-address
      +--ro state?                             identityref
      +--ro is-owner?                           boolean
      +--ro last-adv-source?                     inet:ip-address
      +--ro up-time?                             yang:date-and-time
      +--ro master-down-interval?               uint32
      +--ro skew-time?                           uint32
      +--ro last-event?                          string
      +--ro new-master-reason?                   enumeration
```

# Operational States for IPv6

```
augment /if:interfaces-state/if:interface/ip:ipv6:
  +--ro vrrp
    +--ro vrrp-instance* [vrid]
      +--ro vrid                               uint8
      +--ro version?                           enumeration
      ... ..
      +--ro virtual-ipv6-addresses
        | +--ro virtual-ipv6-address* [ipv6-address]
        |   +--ro ipv6-address                 inet:ipv6-address
      +--ro state?                             identityref
      +--ro is-owner?                           boolean
      +--ro last-adv-source?                    inet:ip-address
      +--ro up-time?                            yang:date-and-time
      +--ro master-down-interval?              uint32
      +--ro skew-time?                          uint32
      +--ro last-event?                         string
      +--ro new-master-reason?                  enumeration
```



# Statistics for IPv4

```
augment /if:interfaces-state/if:interface/ip:ipv4:
  +--ro vrrp
    +--ro vrrp-instance* [vrid]
      +--ro vrid                               uint8
      ... ..
    +--ro statistics
      +--ro discontinuity-time?                yang:date-and-time
      +--ro master-transitions?                yang:counter32
      +--ro advertisement-recv?                yang:counter64
      +--ro advertisement-sent?                yang:counter64
      +--ro interval-errors?                   yang:counter64
      +--ro priority-zero-pkts-rcvd?           yang:counter64
      +--ro priority-zero-pkts-sent?           yang:counter64
      +--ro invalid-type-pkts-rcvd?            yang:counter64
      +--ro address-list-errors?               yang:counter64
      +--ro packet-length-errors?              yang:counter64
```

# Statistics for IPv6

```
augment /if:interfaces-state/if:interface/ip:ipv6:
  +--ro vrrp
    +--ro vrrp-instance* [vrid]
      +--ro vrid                               uint8
      ... ..
    +--ro statistics
      +--ro discontinuity-time?                yang:date-and-time
      +--ro master-transitions?                yang:counter32
      +--ro advertisement-recv?                yang:counter64
      +--ro advertisement-sent?                yang:counter64
      +--ro interval-errors?                   yang:counter64
      +--ro priority-zero-pkts-rcvd?           yang:counter64
      +--ro priority-zero-pkts-sent?           yang:counter64
      +--ro invalid-type-pkts-rcvd?            yang:counter64
      +--ro address-list-errors?                yang:counter64
      +--ro packet-length-errors?              yang:counter64
```

# Global Statistics

```
augment /if:interfaces-state:
```

```
  +--ro vrrp-global
```

```
    +--ro virtual-routers?                uint32
```

```
    +--ro interfaces?                    uint32
```

```
    +--ro checksum-errors?                yang:counter64
```

```
    +--ro version-errors?                 yang:counter64
```

```
    +--ro vrid-errors?                    yang:counter64
```

```
    +--ro ip-ttl-errors?                  yang:counter64
```

```
    +--ro global-statistics-discontinuity-time?
                                                yang:date-and-time
```

# Actions

rpcs:

+---x clear-vrrp-statistics

+--ro input

+--ro clear-type? enumeration

+--ro interface? if:interface-ref

+--ro ip-version? enumeration

+--ro vrid-v4? leafref

+--ro vrid-v6? leafref

# Notifications

notifications:

```
+---n mpls-new-master-event
|  +--ro master-ipaddr?          inet:ipv4-address
|  +--ro new-master-reason?      enumeration
+---n vrrp-protocol-error-event
|  +--ro protocol-error-reason?  enumeration
+---n vrrp-virtual-router-error-event
    +--ro interface?              if:interface-ref
    +--ro ip-version?             enumeration
    +--ro vrid-v4?                leafref
    +--ro vrid-v6?                leafref
    +--ro virtual-router-error-reason?  enumeration
```

# Next Steps

- Solicit comments
- WG adoption