

Flow Specification Yang Model

<https://tools.ietf.org/html/draft-wu-idr-flowspec-yang-cfg-01>

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Topics

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- Flow Specification YANG Model Overview
- Flow Specification Model
- Flow Specification Configuration Data
- Flow Specification State Data
- Possible changes in next revision
- Questions

Background

- This draft was earlier published as draft-wu-rtgwg-flowspec-yang-cfg-00
- Most of the work has been done for BGP flow specification
- Addressed a few configuration and state parameters issues and filled some gaps
- Republished as draft-wu-idr-flowspec-yang-cfg-00

Flow Specification Yang Model Overview

- Defines Yang model for configuration and state data
- Models flow specification rules as defined in RFC 5575
- Models flow specification state data as route information and flow counters
- RFC 6087 Compliance
- Any vendor specific configuration or operational data is augmentable as vendor extensions

Flow Specification Model

- Flowspec module has Flowspec as a top level container
- Flowspec container maintains Flowspec-cfg and Flowspec-state containers for configuration and state
- Flowspec-cfg maintains list of flow specification policies
- A Flowspec policy stores list of flow specification rules
- Flowspec-state maintains Flowspec-rib and Flowspec-statistics containers
- Flowspec-rib maintains list of flowspec routes
- Flowspec-statistics stores counters for flowspec rules

Flow Specification Model

```
module: ietf-flowspec
+--rw flowspec
  +--rw flowspec-cfg
  | +--rw flowspec-policy
  |   +--...
  |   +--rw flowspec-rule
  |     +--...
  +--ro flowspec-state
  | +--ro flowspec-rib
  |   +--...
  +--ro flowspec-statistics
  | +--...
```

Configuration
Container

State
Container

Flow Specification Configuration Data

- Flowspec policy is referred by name
- Flowspec policy is associated with VRF and address family
- Flowspec rule, is referred by name, contains list of components and actions
- Flowspec components referred by type
- Support destination IP prefix, source IP prefix, IP protocol, port, source port, destination port, ICMP type, ICMP code, packet length, TCP flags, DSCP, fragment
- Flowspec actions referred by action type
- Supports traffic-rate, redirect, traffic-marking

Flow Specification Configuration Data

```
+--rw flowspec-cfg
| +--rw flowspec-policy
|   +--rw name
|   +--rw vrf-name
|   +--rw address-family
|   +--rw flowspec-rule
|     +--rw rule-name
|     +--rw flowspec-component
|       +--rw component-type
|       +--rw (component)?
|       ...
|     +--rw flowspec-action
|       +--rw action-type
|       +--rw (action)?
|     ...
```

List of
components

List of
actions

List of
rules

Flow Specification State Data

- Flowspec-state maintains routes and flow counters
- Flowspec-rib container maintains generic as well as protocol specific data
- Flowspec rules are stored in protocol specific data
- Flowspec statistics container maintains flow counters per VRF and address-family
- Supported counters are classified packets, classified bytes, drop packets, drop bytes

Flow Specification State Data

```
+---rw flowspec-state
+---ro flowspec-rib
| +---ro flowspec-route*
|   +---...
|   +---ro flowspec-protocol-specific
|     +---ro (protocol)?
|       +---:(bgp)
|         +---ro flowspec-component
|           +---ro component-type
|             +---ro (component)?
|               +---...
|         +---ro flowspec-action
|           +---ro action-type
|             +---ro (action)?
|               +---...
+---ro flowspec-statistics
+---..
```

List of
components

List of
actions

Flow Specification State Data

```
+--rw flowspec-state
  +-- flowspec-rib
    +--...
  +--ro flowspec-statistics
    +--ro flowspec-stats*
      +--ro vrf-name?
      +--ro address-family
      +--ro flowspec-rule-stats?
        +--ro flowspec-component
          | +--ro component-type
          | +--ro (component)?
          | +--...
        +--ro flowspec-action
          | +--ro action-type
          | +--ro (action)?
          | +--...
        +--ro classified-pkts
        +--ro classified-bytes
        +--ro drop-pkts
        +--ro drop-bytes
```

List of
components

List of
actions

Flow
Counters

Possible changes in the next revision

- Support of V6 Parameters
- Support other flow specification drafts in the model
- Changes due to review comments

Questions?