MSDP YANG
draft-zhang-pim-msdp-yang-01

PIM WG
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MSDP YANG

- This YANG module is reach a preliminary consensus in the YANG multicast design team.


- This draft is versioned on github: [https://github.com/mcallisterjp/pim-yang/](https://github.com/mcallisterjp/pim-yang/)
MSDP YANG

- According to RFC3618 [Multicast Source Discovery Protocol (MSDP)]
- Scope covers MSDP protocol and commonly used configuration
- Defines a YANG data model for MSDP configuration and operation
  High-level structure done
  Configuration attributes done
  Operational state attributes done
  Statistics attributes done
  RPC attributes done
  Still to do:
    - Notifications
    - Further review
**MSDP configuration**

augment /rt:routing/rt:control-plane-protocols:

```
++--rw msdp!
   ++--rw global
      ....
   ++--rw peers
      ....
```

Two level:
Global: General configuration for the entire protocol.
Peer: Special configuration for every MSDP peer.

---

```
++--rw msdp!
   ++--rw global
      |  ++--rw connect-source?  if:interface-ref
      |  ++--rw default-peer! {global-default-peer}?
      |  |  ++--rw peer-addr -> ../../../peers/peer/address
      |  |  ++--rw prefix-policy? string {global-default-peer-policy}?
      |  |  ++--rw originating-rp
      |  |  ++--rw interface?  if:interface-ref
      |  |  ++--rw sa-filter
      |  |  ++--rw in?  string
      |  |  ++--rw out?  string
      |  |  ++--rw ttl-threshold?  uint8
```

- **Connect-source**: The interface is to be the source for the TCP connection.

- **Default-peer**: The default peer accepts all MSDP SA messages. The reverse path forwarding (RPF) check on SA messages can fail, and no SA messages are accepted. We can use a default peer and bypass RPF checks.

- **Originating-rp**: This parameter can be used to define a unique IP address for the RP of each MSDP peer.

- **Sa-filter**: Specifies an access control list (ACL) to filter source active (SA) messages.

- **Ttl-threshold**: Maximum number of hops data packets can traverse before being dropped.
MSDP configuration

- Authentication: Commonly used authentication attributes.
- Enable: Same usage with BGP protocol.
- Mesh-group: The mesh group that the peer belongs.
- Peer-as: Peer's autonomous system number (ASN).
- Timer: The timer definition according to RFC3618.

```
++-rw peers
  +--rw peer* [address]
    +--rw address       inet:ipv4-address
    +--rw authentication
      |   +--rw (authentication-type)?
      |     +--:(key-chain) {peer-key-chain}?
      |     |   +--rw key-chain?   key-chain:key-chain-ref
      |     |   +--:(password) {peer-key-chain}?
      |     |       +--rw key?   string
    +--rw enable?       boolean {peer-admin-enable}?
    +--rw connect-source?  if:interface-ref
    +--rw description?    string {peer-description}?
    +--rw mesh-group?     string
    +--rw peer-as?        string {peer-as}?
  +--rw sa-filter
    |   +--rw in?   string
    |   +--rw out?  string
  +--rw timer
    |   +--rw connect-retry-interval?  uint16 {peer-timer-connect-retry}?
    |   +--rw holdtime-interval?       uint16 {peer-timer-holdtime}?
    |   +--rw keepalive-interval?      uint16 {peer-timer-keepalive}?
  +--rw ttl-threshold?  uint8
```
MSDP state

augment /rt: routing-state /rt: control-plane-protocols:
  +--ro msdp!
  +--ro global
      ......
  +--ro peers
      ......
  +--ro sa-cache
      ......

Three levels:
Global: The same as configuration.
Peer: Include the peer configuration and statistics.
Sa-cache: SA cache state attributes.

Group: The group address of this sa cache.
Source-addr: The source addr of this sa cache.
Origin-rp: The rp information.
Up-time: The up time of this sa cache.
Expire: The expire time of this sa cache.
Holddown-interval: Holddown timer value for SA forwarding.
Peer-learned-from: The address of peer that we learned this SA from.
Rpf-peer: RPF peer.

+--ro sa-cache
  +--ro entry* [group source-addr]
     +--ro group inet:ipv4-address
     +--ro source-addr union
     +--ro origin-rp* [rp-address]
      | +--ro rp-address inet:ip-address
      | +--ro is-local-rp? boolean
      | +--ro sa-adv-expire? uint32
     +--ro up-time? uint32
     +--ro expire? uint32
     +--ro holddown-interval? uint32
     +--ro peer-learned-from? inet:ipv4-address
     +--ro rpf-peer? inet:ipv4-address
Peer state:

- **Session-state**: Per peer state attributes for MSDP.
- **Elapsed-time**: Elapsed time for being in a state.
- **Connect-retry-expire**: Connect retry expire time of peer connection.
- **Hold-expire**: Hold expire time of peer connection.
- **Is-default-peer**: If this peer is default peer.
- **Keepalive-expire**: Keepalive expire time of this peer.
- **Reset-count**: The reset count of this peer.
- **Statistics**: Include the statistics information of received and sent. And other relative information.
MSDP rpc

rpcs:
  +---x msdp-clear-peer
    |   +---w input
    |   +---w peer-address? inet:ipv4-address
    +---x msdp-clear-sa-cache {rpc-clear-sa-cache}?
      +---w input
        +---w entry!
          | +---w group inet:ipv4-address
          | +---w source-addr? union
          +---w peer-address? inet:ipv4-address
          +---w peer-as? string

RPC includes the operation of clearing peer and sa-cache.
MSDP YANG

• Any comments are welcome 😊
Thanks!