MSDP YANG

draft-zhang-pim-msdp-yang-02

PIM WG

IETF97# Seoul

Xufeng Liu
Zheng(Sandy) Zhang
Anish Peter
Mahesh Sivakumar
Feng Guo
Pete McAllister
MSDP YANG

- This YANG module is based on the preliminary consensus in the YANG multicast design team.
- Wiki: http://trac.tools.ietf.org/wg/pim/trac/wiki/yang
- This draft is versioned on github: 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 YANG 02 update

• According to Toerless suggestion, add the Sa-limit feature in global and peer configuration.

• Add detail explanation in all the sections.
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 sa-limit?  uint32 {global-sa-limit}?
        | --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.

• Sa-limit: A limit on the number of SA entries accepted.

• 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 sa-limit? uint32 {peer-sa-limit}?
   +--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
      ......

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.
MSDP state

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.

+++ro peers

| +--ro session-state? enumeration       
| | +--ro elapsed-time? uint32          
| | | +--ro connect-retry-expire? uint32 
| | | +--ro hold-expire? uint32         
| | | +--ro is-default-peer? boolean    
| | | +--ro keepalive-expire? uint32    
| | | +--ro reset-count? uint32         
| | ++--ro statistics
| | | +--ro discontinuity-time? yang:date-and-time 
| | | | +--ro error                      
| | | | | +--ro rpf-failure? uint32      
| | | | +--ro queue                     
| | | | | +--ro size-in? uint32         
| | | | | +--ro size-out? uint32        
| | | | ++--ro received
| | | | | +--ro keepalive? yang:counter64 
| | | | | +--ro notification? yang:counter64 
| | | | | +--ro sa-message? yang:counter64 
| | | | | +--ro sa-response? yang:counter64 
| | | | | +--ro sa-request? yang:counter64 
| | | | | +--ro total? yang:counter64     
| | | ++--ro sent
| | | | +--ro keepalive? yang:counter64 
| | | | +--ro notification? yang:counter64 
| | | | +--ro sa-message? yang:counter64 
| | | | +--ro sa-response? yang:counter64 
| | | | +--ro sa-request? yang:counter64 
| | | | +--ro total? yang:counter64     

...
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 😊
• WG adoption?
Thanks!