Routing CLI Reference

CLI commands for configuring and monitoring the BGP, IGMP, OMP, OSPF, and PIM routing protocols on vEdge routers.

Routing Protocol Configuration Commands

You configure routing protocols on vEdge routers. For BGP and OSPF, you configure them in each VPN:

```
omp...
vpn vpn-id
router
  bgp...

igmp...
multicast-replicator...
ospf...
pim...
```

BGP Configuration and Monitoring Commands

Use the following commands to configure BGP within a VPN on a vEdge router:

```
vpn vpn-id
router
  bgp local-as-number
    address-family ipv4-unicast
      aggregate-address prefix/length [as-set] [summary-only]
      maximum-paths number
      network prefix/length
      redistribute (connected | nat | omp | ospf | static) [route-policy policy-name]
    best-path
      as-path multipath-relax
      compare-router-id
      med (always-compare | deterministic | missing-as-worst)
    distance
      external number
      internal number
      local number
    neighbor ip-address
      address-family ipv4-unicast
        maximum-prefixes number [threshold] [restart minutes | warning-only]
        route-policy policy-name (in | out)
        capability-negotiate
description text
  ebgp-multihop ttl
  next-hop-self
  password md5-digest-string
  remote-as remote-as-number
  send-community
  send-ext-community
  [no] shutdown
  timers
    advertisement-interval number
    connect-retry seconds
    holdtime seconds
    keepalive seconds
  update-source ip-address
  ? end neighbor configuration
  propagate-as-path
  router-id ip-address
  [no] shutdown
  timers
    holdtime seconds
    keepalive seconds
```

Use the following commands to monitor BGP on a vEdge router:

```
```
• **clear bgp all**—Reset the connections to all BGP neighbors in the specified VPN.

• **clear bgp neighbor**—Reset the connection to a specific BGP neighbor in the specified VPN.

• **debug bgp events**—Display the events that have occurred as part of the BGP finite state model.

• **debug bgp fsm**—Display the states in the BGP finite state model, which describes the actions that BGP takes and the BGP packets that are exchanged between BGP neighbors when they are establishing a peering session.

• **debug bgp ipcs**—Display information about BGP interprocess communication with other processes running on the vEdge router.

• **debug bgp packets v**—Display the packets that BGP is receiving from its peers.

• **show bgp neighbor**—Display information about all BGP connections to neighbors.

• **show bgp routes**—Display information about all routes learned by BGP.

• **show bgp summary**—Display summary information about BGP.

### IGMP Configuration and Monitoring Commands

Use the following commands to configure IGMP within a VPN on a vEdge router:

```plaintext
vpn vpn-id
   router
      igmp
         interface interface-name
            join-group group-address
            [no] shutdown
```

Use the following commands to monitor IGMP:

• **clear igmp interface**—Clear the interfaces on which IGMP is enabled.

• **clear igmp protocol**—Flush all IGMP groups and relearn them.

• **clear igmp statistics**—Zero IGMP statistics.

• **show igmp groups**—Display information about multicast groups.

• **show igmp interface**—Display information about the interfaces on which IGMP is enabled.

• **show igmp statistics**—Display IGMP statistics.

### OMP Configuration and Monitoring Commands

By default, OMP is enabled on all vEdge routers and vSmart controllers. Use the following commands to modify the OMP configuration:

```plaintext
omp
   advertise (bgp | connected | ospf | static) (on vEdge routers only)
   discard-rejected (on vSmart controllers only)
   ecmp-limit number (on vEdge routers only)
   graceful-restart
   overlay-as as-number
```

https://sdwan-docs.cisco.com/Product_Documentation/Software_Features/Release_18.4/03Routing/07Routing_CLI_Reference

Generated on: Tue, 02 Apr 2019 20:39:47 GMT

Generated by: Anonymous
Use the following commands to monitor OMP:

- **clear omp all**—Restart OMP and all OMP sessions.
- **clear omp peer**—Restart the OMP session to a specific peer.
- **clear omp routes**—Flush the OMP routes from the route table and then re-install them.
- **clear omp tlocs**—Remove TLOCs from the tunnel table and then re-install them.
- **debug omp events [level level]**—Display information to help debug OMP events.
- **debug omp ipcs [level level]**—Display information to help debug OSPF interprocess communication with other processes running on the Viptela device.
- **debug omp packets [level level]**—Display information to help debug OMP packets.
- **show omp peers**—Display information about active OMP peering sessions.
- **show omp routes**—Display OMP route information.
- **show omp services**—Display OMP services information.
- **show omp summary**—Display summary information about OMP.
- **show omp tloc-paths**—Display TLOC path information.
- **show omp tlocs**—Display TLOC information.

### OSPF Configuration and Monitoring Commands

Use the following commands to configure OSPF within a VPN on a vEdge router:

```plaintext
vpn vpn-id
  router
    ospf
      area number
        interface interface-name
          authentication
            authentication-key key
            message-digest key
            type (message-digest | simple)
          cost number
          dead-interval seconds
          hello-interval seconds
          network [broadcast | point-to-point]
          passive-interface
          priority number
          retransmit-interval seconds
          ! end area interface
        nssa
        no-summary
        translate (always | candidate | never)
```
Use the following commands to monitor OSPF on a vEdge router:

- **clear ospf all**—Reset all OSPF neighbors in the specified VPN.
- **debug ospf events**—Display information to help debug OSPF events in the specified VPN.
- **debug ospf ipcs**—Display information to help debug OSPF interprocess communication with other processes running on the vEdge router.
- **debug ospf ism**—Display information about the OSPF interface state machine in the specified VPN, to help debug issues with establishing an OSPF session on an interface.
- **debug ospf lsa**—Display information to help debug OSPF link-state advertisements in the specified VPN.
- **debug ospf nsma**—Display information about the OSPF neighbor state machine in the specified VPN, to help debug issues with establishing an OSPF session with a neighbor.
- **debug ospf nssa**—Display information to help debug an OSPF NSSA (Not-So-Stubby Area)
- **debug ospf packets**—Display information about OSPF packets in the specified VPN, to help debug issues related to the exchange of packets between OSPF routers.
- **show ospf database**—Display the entries in the OSPF link-state database.
- **show ospf database-summary**—Display a summary of the entries in the OSPF link-state database.
- **show ospf interface**—List the interfaces in the specified VPN that are running OSPF.
- **show ospf neighbor**—List the OSPF neighbors in the specified VPN.
- **show ospf process**—List the OSPF processes running in the specified VPN.
- **show ospf routes**—Display information about all routes learned by OSPF.

**PIM and Multicast Replicator Configuration and Monitoring Commands**

Use the following commands to configure PIM and multicast replicators within a VPN on a vEdge router:
Use the following commands to monitor PIM and multicast replicators:

- **clear ip mfib record**—Clear the statistics for a particular group, source, or VPN from the Multicast Forwarding Information Base (MFIB).
- **clear ip mfib stats**—Clear all statistics from the MFIB.
- **clear pim interface**—Relearn all PIM neighbors and joins.
- **clear pim neighbor**—Clear the statistics for a PIM neighbor.
- **clear pim protocol**—Clear all PIM protocol state.
- **clear pim statistics**—Clear all PIM-related statistics and relearn all PIM neighbors and joins.
- **show ip mfib oil**—Display the list of outgoing interfaces from the MFIB.
- **show ip mfib stats**—Display packet transmission and receipt statistics for active entries in the MFIB.
- **show ip mfib summary**—Display a summary of all active entries in the MFIB.
- **show multicast replicator**—List information about multicast replicators.
- **show multicast rfp**—List multicast reverse-path forwarding information.
- **show multicast topology**—List information related to the multicast domain topology.
- **show multicast tunnel**—List information about the IPsec tunnels between multicast peers.
- **show omp multicast-auto-discover**—List the peers that support multicast.
- **show omp multicast-routes**—List the multicast routes that OMP has learned from PIM join messages.
- **show pim interface**—List the interfaces that are running PIM.
- **show pim neighbor**—List PIM neighbors.
- **show pim statistics**—Display all PIM-related statistics.

**Additional Information**

Configuring Multicast Overlay Routing
Configuring OMP
Configuring Unicast Overlay Routing
Multicast Overlay Routing Overview
Routing Configuration Examples
Unicast Overlay Routing Overview