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# VPRN Services Command Reference

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## Command Hierarchies

- [VPRN Service Configuration Commands on page 1586](#)
  - [L2TP Commands on page 1589](#)
  - [DHCP Commands on page 1591](#)
  - [DHCP6 Commands on page 1592](#)
  - [GSMP Commands on page 1595](#)
  - [IGMP Commands on page 1596](#)
  - [IPSec Configuration Commands on page 1598](#)
  - [Multicast VPN Commands on page 1601](#)
  - [NTP Commands on page 1605](#)
  - [NAT Commands on page 1606](#)
  - [Router Advertisement Commands on page 1604](#)
  - [Subscriber Interface Commands on page 1607](#)
  - [Interface Commands on page 1614](#)
    - [Interface DHCP Commands on page 1614](#)
    - [Interface Spoke SDP Commands on page 1619](#)
    - [Interface SAP Commands on page 1623](#)
    - [IPSec Gateway Commands on page 1600](#)
    - [Interface VRRP Commands on page 1621](#)
    - [Routed VPLS Commands on page 1627](#)
  - [Network Interface Commands on page 1617](#)
  - [BGP Configuration Commands on page 1628](#)
  - [OSPF Configuration Commands on page 1633](#)
  - [PIM Configuration Commands on page 1636](#)
  - [RIP Configuration Commands on page 1640](#)
  - [Threat Management Service Interface Commands on page 1642](#)
  - [RADIUS Commands on page 1643](#)
- [Show Commands on page 1645](#)
- [Clear Commands on page 1647](#)
- [Debug Commands on page 1648](#)

## VPRN Service Configuration Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — aggregate ip-prefix/ip-prefix-length [summary-only] [as-set] [aggregator as-number: ip-address] [community comm-id] [black-hole | indirect ip-address]
      — no aggregate ip-prefix/ip-prefix-length
      — auto-bind {ldp | gre | rsvp-te | mpls}
      — no auto-bind
      — autonomous-system as-number
      — no autonomous-system
      — backup-path [ipv4][ipv6]
      — [no] carrier-carrier-vpn
      — confederation confed-as-num members as-number [as-number... (up to 15 max)]
      — no confederation confed-as-num members as-number [as-number... (up to 15 max)]
      — no confederation
      — description description-string
      — no description
      — [no] dns
        — ipv4-source-address ipv4-address
        — no ipv4-source-address
        — ipv6-source-address ipv6-address
        — no ipv6-source-address
        — primary-dns ip-address
        — no primary-dns
        — secondary-dns ip-address
        — no secondary-dns
        — [no] shutdown
        — tertiary-dns ip-address
        — no tertiary-dns
      — ecmp max-ecmp-routes
      — no ecmp
      — eth-cfm
        — tunnel-fault [accept | ignore]
      — fib-priority {high | standard}
      — grt-lookup
        — [no] enable-grt
          — [no] allow-local-management
          — static-route {ip-prefix/prefix-length | ip-prefix netmask} [preference preference] [metric metric] [enable|disable] grt
          — no static-route
        — export-grt policy-name [policy-name ... (up to 5 max)]
        — export-limit num-routes
        — no export-limit
        — export-v6-limit
        — no export-v6-limit
      — [no] hash-label
      — igmp-host-tracking
        — expiry-time expiry-time
        — no expiry-time
        — [no] shutdown
      — label-mode {vrf | next-hop}

```

- **no label-mode**
- **maximum-ipv6-routes** *number* [*log-only*] [**threshold** *percent*]
- **no maximum-ipv6-routes**
- **maximum-routes** *number* [*log-only*] [**threshold** *percent*]
- **no maximum-routes**
- **mc-maximum-routes** *number* [*log-only*] [**threshold** *percent*]
- **no mc-maximum-routes**
- **multicast-info-policy** *policy-name*
- **no multicast-info-policy**
- **mvpn**
- [**no**] **nat**
- [**no**] **ptp**
  - **peer**
  - **peer-limit** *limit*
  - **no peer-limit**
- **reassembly-group** *nat-group-id*
- **route-distinguisher** [*ip-address:number1* | *asn:number2*]
- **no route-distinguisher**
- **router-id** *ip-address*
- **no router-id**
- **service-name** *service-name*
- **no service-name**
- **sgt-qos**
  - **application** *dscp-app-name* **dscp** {*dscp-value* | *dscp-name*}
  - **application** *dot1p-app-name* **dot1p** *dot1p-priority*
  - **no application** {*dscp-app-name* | *dot1p-app-name*}
  - **dscp** *dscp-name* **fc** *fc-name*
  - **no dscp** *dscp-name*
- **single-sfm-overload** [**holdoff-time** *holdoff-time*]
- **no single-sfm-overload**
- [**no**] **shutdown**
- **shutdown**
- **snmp-community** *community-name* [**version** *SNMP-version*]
- **no snmp-community** *community-name*
- **source-address**
  - **application** *app* [*ip-int-name* | *ip-address*]
  - **no application** *app*
  - **application6** *app* *ipv6-address*
- [**no**] **spoke-sdp** *sdp-id*
  - [**no**] **control-channel-status**
    - **refresh-timer** *value*
    - **no refresh-timer**
  - [**no**] **control-word**
  - [**no**] **pw-path-id**
    - **agi** *agi*
    - **no agi**
    - **saii-type2** *global-id:node-id:ac-id*
    - **no saii-type2**
    - **taii-type2** *global-id:node-id:ac-id*
    - **no taii-type2**
  - [**no**] **shutdown**
- [**no**] **static-route** {*ip-prefix/prefix-length* | *ip-prefix netmask*} [**preference** *preference*] [**metric** *metric*] [**tag** *tag*] [**community** *comm-id*] [**enable** | **disable**] {**next-hop**

- ip-int-name*|*ip-address* [*mcast-family*] | *ipsec-tunnel ipsec-tunnel-name*} [**bfd-enable** | {**cpe-check** *cpe-ip-address* [**interval** *seconds*] [**drop-count** *count*] [**log**]}
- [**no**] **static-route** {*ip-prefix/prefix-length* | *ip-prefix netmask*} [**preference** *preference*] [**metric** *metric*] [**tag** *tag*] [**community** *comm-id*] [**enable** | **disable**] **indirect** *ip-address* [**cpe-check** *cpe-ip-address* [**interval** *seconds*][**drop-count** *count*] [**log**]
- [**no**] **static-route** {*ip-prefix/prefix-length* | *ip-prefix netmask*} [**preference** *preference*] [**metric** *metric*] [**tag** *tag*] [**community** *comm-id*] [**enable** | **disable**] **black-hole** [*mcast-family*]
- **type** {**hub** | **subscriber-split-horizon**}
- **no type**
- **vrf-export** *policy-name* [*policy-name...*(upto 16 max)]
- **no vrf-export**
- **vrf-import** *policy-name* [*policy-name...*(upto 16 max)]
- **no vrf-import**
- **vrf-target** {*ext-comm* | {**export** *ext-comm*}[**import** *ext-comm*]}
- **no vrf-target**

## L2TP Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — l2tp
      — no l2tp
        — avp-hiding {sensitive|always}
        — no avp-hiding
        — calling-number-format ascii-spec
        — no calling-number-format
        — challenge {always}
        — no challenge
        — destruct-timeout destruct-timeout
        — no destruct-timeout
        — exclude-avps calling-number
        — no exclude-avps
        — group tunnel-group-name [create]
        — no group tunnel-group-name
          — avp-hiding {sensitive|always|never}
          — no avp-hiding
          — challenge always
          — no challenge
          — description description-string
          — no description
          — destruct-timeout destruct-timeout
          — no destruct-timeout
          — hello-interval hello-interval
          — no hello-interval
          — idle-timeout idle-timeout
          — no ipcp-subnet-negotiation
          — no idle-timeout
          — lns-group lns-group-id
          — no lns-group
          — local-address ip-address
          — no local-address
          — local-name host-name
          — no local-name
          — max-retries-estab max-retries
          — no max-retries-estab
          — max-retries-not-estab max-retries
          — no max-retries-not-estab
          — password password [hash | hash2]
          — no password
          — ppp
            — authentication {chap|pap|pref-chap}
            — authentication-policy auth-policy-name
            — no authentication-policy
            — default-group-interface ip-int-name service-id service-id
            — no default-group-interface
            — [no] ipcp-subnet-negotiation

```

- **keepalive** *seconds* [**hold-up-multiplier** *multiplier*]
- **no keepalive**
- **mtu** *mtu-bytes*
- **no mtu**
- [**no**] **proxy-authentication**
- [**no**] **proxy-lcp**
- **user-db** *local-user-db-name*
- **no user-db**
- **session-assign-method** *weighted*
- **no session-assign-method**
- **session-limit** *session-limit*
- **no session-limit**
- **tunnel** *tunnel-name* [**create**]
- **no tunnel** *tunnel-name*
  - [**no**] **auto-establish**
  - **avp-hiding** {**never** | **sensitive** | **always**}
  - **no avp-hiding**
  - **challenge** *challenge-mode*
  - **no challenge**
  - **description** *description-string*
  - **no description**
  - **destruct-timeout** *destruct-timeout*
  - **no destruct-timeout**
  - **hello-interval** *hello-interval*
  - **hello-interval** **infinite**
  - **no hello-interval**
  - **idle-timeout** *idle-timeout*
  - **idle-timeout** **infinite**
  - **no idle-timeout**
  - **local-address** *ip-address*
  - **no local-address**
  - **local-name** *host-name*
  - **no local-name**
  - **max-retries-estab** *max-retries*
  - **no max-retries-estab**
  - **max-retries-not-estab** *max-retries*
  - **no max-retries-not-estab**
  - **password** *password* [**hash** | **hash2**]
  - **no password**
  - **peer** *ip-address*
  - **no peer**
  - **ppp**
    - [**no**] **ipcp-subnet-negotiation**
  - **preference** *preference*
  - **no preference**
  - **remote-name** *host-name*
  - **no remote-name**
  - **session-limit** *session-limit*
  - **no session-limit**
  - [**no**] **shutdown**
- **peer-address-change-policy** {**accept** | **ignore** | **reject**}
- **receive-window-size** [*4..1024*]
- **no receive-window-size**
- [**no**] **shutdown**

## DHCP Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — dhcp
        — local-dhcp-server server-name [create]
        — no local-dhcp-server server-name
          — description description-string
          — no description
          — failover
            — maximum-client-lead-time [hrs hours] [min minutes] [sec seconds]
            — no maximum-client-lead-time
            — partner-down-delay [hrs hours] [min minutes] [sec seconds]
            — no partner-down-delay
            — peer ip-address tag sync-tag-name
            — no peer ip-address
            — [no] shutdown
            — [no] startup-wait-time [min minutes] [sec seconds]
        — [no] force-renews
        — pool pool-name [create]
        — no pool pool-name
          — description description-string
          — no description
          — failover
            — maximum-client-lead-time [hrs hours] [min minutes] [sec seconds]
            — no maximum-client-lead-time
            — partner-down-delay [hrs hours] [min minutes] [sec seconds]
            — no partner-down-delay
            — peer ip-address tag sync-tag-name
            — no peer ip-address
            — [no] shutdown
            — [no] startup-wait-time [min minutes] [sec seconds]
            — max-lease-time [days days] [hrs hours] [min minutes] [sec seconds]
            — no max-lease-time
            — min-lease-time [days days] [hrs hours] [min minutes] [sec seconds]
            — no min-lease-time
            — minimum-free minimum-free [percent] [event-when-depleted]
            — no minimum-free
            — offer-time [min minutes] [sec seconds]
            — no offer-time
          — options
            — custom-option option-number address [ip-address...(up to 4 max)]
            — custom-option option-number hex hex-string

```

- **custom-option** *option-number* **string** *ascii-string*
- **no custom-option** *option-number*
- **dns-server** [*ip-address...*(up to 4 max)]
- **domain-name** *domain-name*
- **no domain-name**
- **lease-rebind-time** [*days days*] [*hrs hours*] [*min minutes*] [*sec seconds*]
- **no lease-rebind-time**
- **lease-renew-time** [*days days*] [*hrs hours*] [*min minutes*] [*sec seconds*]
- **no lease-renew-time**
- **lease-time** [*days days*] [*hrs hours*] [*min minutes*] [*sec seconds*]
- **no lease-time**
- **netbios-name-server** *ip-address* [*ip-address...*(up to 4 max)]
- **no netbios-name-server**
- **netbios-node-type** *netbios-node-type*
- **no netbios-node-type**
- **subnet** {*ip-address/mask|ip-address netmask*} [**create**]
- **no subnet** {*ip-address/mask|ip-address netmask*}
  - [**no**] **address-range** *start-ip-address end-ip-address*
  - [**no**] **drain**
  - [**no**] **exclude-addresses** *start-ip-address* [*end-ip-address*]
  - **maximum-declined** *maximum-declined*
  - **no maximum-declined**
  - **minimum-free** *minimum-free* [**percent**] [**event-when-depleted**]
  - **no minimum-free**
  - **options**
    - **custom-option** *option-number* **address** [*ip-address...*(upto 4 max)]
    - **custom-option** *option-number* **hex** *hex-string*
    - **custom-option** *option-number* **string** *ascii-string*
    - **no custom-option** *option-number*
    - **default-router** *ip-address* [*ip-address...*(up to 4 max)]
    - **no default-router**
    - **subnet-mask** *ip-address*
    - **no subnet-mask**
  - [**no**] **shutdown**
  - [**no**] **use-gi-address**
  - [**no**] **use-pool-from-client**
  - **user-db** *local-user-db-name*
  - **no user-db**
- **dhcp6**
  - **local-dhcp-server** *server-name* [**create**]
  - **no local-dhcp-server** *server-name*
    - **description** *description-string*
    - **no description**
    - **failover**
      - **ignore-mclt-on-takeover**
      - **no ignore-mclt-on-takeover**



- **maximum-client-lead-time** [hrs hours] [min minutes] [sec seconds]
- **no maximum-client-lead-time**
- **partner-down-delay** [hrs hours] [min minutes] [sec seconds]
- **no partner-down-delay**
- **peer** ip-address tag sync-tag-name
- **no peer** ip-address
- **[no] shutdown**
- **[no] startup-wait-time** [min minutes] [sec seconds]
- **[no] ignore-rapid-commit**
- **ignore-rapid-commit** [days days][hrs hours] [min minutes] [sec seconds]
- **no ignore-rapid-commit**
- **lease-hold-time** [days days][hrs hours] [min minutes] [sec seconds]
- **no lease-hold-time**
- **pool** pool-name [create]
- **no pool** pool-name
  - **description** description-string
  - **no description**
  - **options**
    - **custom-option** option-number address [ipv6-address...(up to 4 max)]
    - **custom-option** option-number hex hex-string
    - **custom-option** option-number string ascii-string
    - **no custom-option** option-number
    - **delegated-prefix-length** [48..64]
    - **dns-server** ipv6-address [ipv6-address...(up to 4 max)]
    - **domain-name** domain-name
    - **no domain-name**
  - **prefix** ipv6-address/prefix-length [failover {local|remote}] [pd] [wan-host] [create]
  - **no prefix** ipv6-address/prefix-length
  - **preferred-lifetime** [days days][hrs hours] [min minutes] [sec seconds]
  - **no preferred-lifetime**
  - **rebind-timer** [days days][hrs hours] [min minutes] [sec seconds]
  - **no rebind-timer**
  - **renew-timer** [days days][hrs hours] [min minutes] [sec seconds]
  - **no renew-timer**
  - **valid-lifetime** [days days][hrs hours] [min minutes] [sec seconds]
  - **no valid-lifetime**
- **use-link-address** [scope scope]
- **no use-link-address**
- **[no] use-pool-from-client**
- **user-ident** user-ident
- **no user-ident**



## GSMP Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — gsmp
        — [no] group name
          — ancp
            — [no] dynamic-topology-discover
            — [no] oam
          — description description-string
          — no description
          — hold-multiplier multiplier
          — no hold-multiplier
          — keepalive seconds
          — no keepalive
          — [no] neighbor ip-address
            — description description-string
            — no description
            — local-address ip-address
            — no local-address
            — priority-marking dscp dscp-name
            — priority-marking prec ip-prec-value
            — no priority-marking
            — [no] shutdown
          — idle-filter
          — [no] idle-filter
          — persistence-database
          — [no] persistence-database
          — [no] shutdown
        — [no] shutdown

```

## IGMP Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — [no] igmp
        — [no] group-interface ip-int-name
        — [no] group-interface fwd-service service-id ip-int-name
          — [no] disable-router-alert-check
          — import policy-name
          — no import
          — max-groups value
          — no max-groups
          — max-grp-sources [1..32000]
          — no max-grp-sources
          — max-sources [1..1000]
          — no max-sources
          — mcac
            — mc-constraints
              — [no] shutdown
              — policy policy-name
              — no policy
              — unconstrained-bw bandwidth mandatory-bw man-
                datary-bw
              — no unconstrained-bw
            — query-src-ip ip-address
            — no query-src-ip
            — [no] shutdown
            — [no] sub-hosts-only
            — [no] subnet-check
            — version version
            — no version
          — grp-if-query-src-ip ip-address
          — no grp-if-query-src-ip
        — [no] interface ip-int-name
          — [no] disable-router-alert-check
          — import policy-name
          — no import
          — max-groups value
          — no max-groups
          — max-sources [1..32000]
          — no max-sources
          — max-grp-sources [1..1000]
          — no max-grp-sources
          — mcac
            — mc-constraints
              — level level-id bw bandwidth
              — no level level-id
              — number-down number-lag-port-down
              — number-down number-lag-port-down level
                level-id
              — [no] shutdown
            — policy policy-name
            — no policy

```

- **unconstrained-bw** *bandwidth* **mandatory-bw** *mandatory-bw*
- **no unconstrained-bw**
- **[no] shutdown**
- **ssm-translate**
  - **[no] grp-range** *start end*
  - **[no] source** *ip-address*
- **static**
  - **[no] group** *grp-ip-address*
  - **[no] source** *ip-address*
  - **[no] starg**
- **[no] subnet-check**
- **version** *version*
- **no version**
- **[no] query-interval**
- **query-interval** *seconds*
- **[no] query-last-member-interval**
- **query-last-member-interval** *seconds*
- **[no] query-response-interval**
- **query-response-interval** *seconds*
- **[no] robust-count**
- **robust-count** *robust-count*
- **[no] shutdown**
- **ssm-translate**
  - **[no] grp-range** *start end*
  - **[no] source** *ip-address*

## IPSec Configuration Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — ipsec
        — security-policy security-policy-id [create]
        — no security-policy security-policy-id
          — entry entry-id [create]
          — no entry entry-id
            — local-ip {ip-prefix/prefix-length | ip-prefix netmask |
              any}
            — remote-ip {ip-prefix/prefix-length | ip-prefix netmask |
              any}
        — ipsec-interface ip-int-name [create]
        — no ipsec-interface ip-int-name
          — [no] address {ip-address/mask | ip-address netmask}
          — description description-string
          — no description
          — ip-mtu octets
          — no ip-mtu
          — sap sap-id [create]
          — no sap sap-id
            — description description-string
            — no description
            — egress
              — agg-rate-limit agg-rate [queue-frame-based-
                accounting]
              — no agg-rate-limit agg-rate
              — filter ip ip-filter-id
              — no filter [ip ip-filter-id]
              — [no] qinq-mark-top-only
              — qos policy-id [port-redirect-group queue-group-
                name instance instance-id]
              — no qos
              — [no] queue-override
                — [no] queue queue-id
                  — adaptation-rule [pir adaptation-rule]
                    [cir adaptation-rule]
                  — no adaptation-rule
                  — avg-frame-overhead percentage
                  — no avg-frame-overhead
                  — cbs size-in-kbytes
                  — no cbs
                  — high-prio-only percent
                  — no high-prio-only
                  — mbs {size-in-kbytes | default}
                  — no mbs
                  — rate pir-rate [cir cir-rate]
                  — no rate
                — [no] scheduler-override
                  — [no] scheduler scheduler-name
                    — rate pir-rate [cir cir-rate]
                    — no rate

```

- **scheduler-policy** *scheduler-policy-name*
- **no scheduler-policy**
- **ingress**
  - **filter ip** *ip-filter-id*
  - **no filter** [**ip** *ip-filter-id*]
  - **match-qinq-dot1p** {**top** | **bottom**}
  - **qos** *policy-id* [**shared-queuing** | **multipoint-shared**][**fp-redirect-group** *queue-group-name* **instance** *instance-id*]
  - **no qos**
  - [**no**] **queue-override**
    - [**no**] **queue** *queue-id*
      - **adaptation-rule** [**pir** *adaptation-rule*] [**cir** *adaptation-rule*]
      - **no adaptation-rule**
      - **cbs** *size-in-kbytes*
      - **no cbs**
      - **high-prio-only** *percent*
      - **no high-prio-only**
      - **mbs** {*size-in-kbytes* | **default**}
      - **no mbs**
      - **rate** *pir-rate* [**cir** *cir-rate*]
      - **no rate**
  - [**no**] **scheduler-override**
    - [**no**] **scheduler** *scheduler-name*
      - **rate** *pir-rate* [**cir** *cir-rate*]
      - **no rate**
  - **scheduler-policy** *scheduler-policy-name*
  - **no scheduler-policy**
- [**no**] **shutdown**
- **tunnel** *ipsec-tunnel-name* [**create**]
- **no tunnel** *ipsec-tunnel-name*
  - [**no**] **bfd-designate**
  - [**no**] **bfd-enable** **service** *service-id* **interface** *interface-name* **dst-ip** *ip-address*
  - [**no**] **clear-df-bit**
  - **description** *description-string*
  - **no description**
  - [**no**] **dynamic-keying**
    - [**no**] **auto-establish**
    - **ike-policy** *ike-policy-id*
    - **no ike-policy**
    - **local-id** **type** {**ipv4** <*v4address*> | **fqdn** <*fqdn-value*>}
    - **no local-id**
    - **pre-shared-key** *key*
    - **no pre-shared-key**
    - **transform** *transform-id* [*transform-id*...(up to 4)]
    - **no transform**
  - **local-gateway-address** *ip-address* **peer** *ip-address* **delivery-service** *service-id*
  - **no local-gateway-address**
  - [**no**] **manual-keying**

- **security-association** *security-entry-id*  
**authentication-key** *authentication-key*  
**encryption-key** *encryption-key spi spi*  
**transform** *transform-id direction*  
{i inbound | outbound}
- **no security-association** *security-entry-id*  
**direction** {inbound | outbound}
- **replay-window** {32 | 64 | 128 | 256 | 512}
- **no replay-window**
- **security-policy** *security-policy-id*
- **no security-policy**
- [no] **shutdown**
- [no] **sap** *sap-id*
  - **ipsec-gw** *name*
  - **no ipsec-gw**
    - **cert**
      - **cert** *filename*
      - **no cert**
      - **key** *filename*
      - **no key**
      - **trust-anchor** *ca-profile-name*
      - **no trust-anchor**
    - **default-secure-service** *service-id ipsec-interface ip-int-name*
    - **no default-secure-service**
    - **default-tunnel-template** *ipsec template identifier*
    - **no default-tunnel-template**
    - **ike-policy** *ike-policy-id*
    - **no ike-policy**
    - **local-gateway-address** *ip-address*
    - **no local-gateway-address**
    - **local-id** *type {ipv4|fqdn} [value [value]]*
    - **no local-id**
    - **pre-shared-key** *key*
    - **no pre-shared-key**
    - **radius-accounting-policy** *policy-name*
    - **no radius-accounting-policy**
    - **radius-authentication-policy** *name*
    - **no radius-authentication-policy**
    - [no] **shutdown**



## Multicast VPN Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — mvpn
        — [no] auto-discovery [default | mdt-safi]
        — c-mcast-signaling {bgp | pim}
        — no c-mcast-signaling
        — [no] intersite-shared
        — mdt-type {sender-receiver | sender-only | receiver-only}
        — provider-tunnel
          — inclusive
            — mldp
              — [no] shutdown
            — pim {asm | ssm} grp-ip-address
            — no pim
              — hello-interval hello-interval
              — no hello-interval
              — hello-multiplier deci-units
              — no hello-multiplier
              — [no] improved-assert
              — [no] shutdown
              — [no] three-way-hello
              — [no] tracking-support
            — rsvp
              — [no] enable-bfd-leaf
              — enable-bfd-root [transmit-interval] [multiplier
                multiplier]
              — no enable-bfd-root
              — lsp-template lsp-template
              — no lsp-template
              — [no] shutdown
          — selective
            — [no] auto-discovery-disable
            — data-delay-interval value
            — no data-delay-interval
            — data-threshold {c-grp-ip-addr/mask|c-grp-ip-addr
              netmask} s-pmsi-threshold
            — data-threshold c-grp-ipv6-addr/prefix-length s-pmsi-
              threshold
            — no data-threshold {c-grp-ip-addr/mask|c-grp-ip-addr
              netmask}
            — no data-threshold c-grp-ipv6-addr/prefix-length}
            — [no] enable-asm-mdt
            — [no] join-tlv-packing-disable
            — [no] maximum-p2mp-spmsi
            — [no] pim-asm {grp-ip-address/mask|grp-ip-address
              netmask}
            — pim-ssm {grp-ip-address/mask|grp-ip-address net-
              mask}
            — no rsvp
              — no lsp-template

```

- **no shutdown**
  - **no mldp**
    - **no shutdown**
  - **no pim-asm**
- **umh-pe-backup**
  - **umh-pe** *ip-address* **standby** *ip-address*
  - **no umh-pe** *ip-address*
- **umh-selection** {**highest-ip**|**hash-based**|**tunnel-status**|**unicast-rt-pref**}
- **no umh-selection**
- **vrf-export** {**unicast** | *policy-name* [*policy-name...*(up to 5 max)]}
- **no vrf-export**
- **vrf-import** {**unicast** | *policy-name* [*policy-name...*(up to 5 max)]}
- **no vrf-import**
- **vrf-target** {**unicast** | *ext-community* | **export unicast** | *ext-community* | **import unicast** | *ext-community*}
- **no vrf-target**
  - **export** {**unicast** | *ext-community*}
  - **import** {**unicast** | *ext-community*}

## Redundant Interface Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — [no] redundant-interface ip-int-name
        — address {ip-address/mask | ip-address netmask} [remote-ip ip-address]
        — no address
        — [no] description description-string
        — [no] shutdown
        — [no] spoke-sdp sdp-id:vc-id
          — egress
            — filter [ip ip-filter-id]
            — vc-label ingress-vc-label
            — no vc-label [ingress-vc-label]
          — ingress
            — filter [ip ip-filter-id]
            — no filter
            — vc-label ingress-vc-label
            — no vc-label [ingress-vc-label]
        — [no] shutdown

```

## Router Advertisement Commands

```

config
  — router
    — [no] router-advertisement
      — [no] interface ip-int-name
        — current-hop-limit number
        — no current-hop-limit
        — [no] managed-configuration
        — max-advertisement-interval seconds
        — no max-advertisement-interval
        — min-advertisement-interval seconds
        — no min-advertisement-interval
        — mtu mtu-bytes
        — no mtu
        — [no] other-stateful-configuration
        — prefix [ipv6-prefix/prefix-length]
        — no prefix
          — [no] autonomous
          — [no] on-link
          — preferred-lifetime {seconds | infinite}
          — no preferred-lifetime
          — valid-lifetime {seconds | infinite}
          — no valid-lifetime
        — reachable-time milli-seconds
        — no reachable-time
        — retransmit-time milli-seconds
        — no retransmit-time
        — router-lifetime seconds
        — no router-lifetime
        — [no] shutdown
        — [no] use-virtual-mac

```

## NTP Commands

Note that the **ntp-server** command is not supported in the **vprnntp** context. Then NTP is configured in a VPRN service, the NTP server mode is assumed and is not optional.

```

config
  — service
    — vprn
      — [no] ntp
        — [no] authenticate
        — [no] authentication-check
        — authentication-key key-id key [hash | hash2] type {des | message-digest}
        — no authentication-key key-id
        — [no] broadcast [router router-name] {interface ip-int-name} [key-id key-id] [version version] [ttl ttl]

```

## NAT Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — [no] nat
        — inside
          — [no] destination-prefix ip-prefix/length
          — dual-stack-lite
            — [no] address ipv6-address
              — tunnel-mtu mtu-bytes
              — no tunnel-mtu
            — [no] shutdown
            — subscriber-prefix-length prefix-length
            — no subscriber-prefix-length
          — l2-aware
            — [no] address ip-address/mask
          — nat-policy nat-policy-name
          — no nat-policy
          — redundancy
            — peer ip-address
            — no peer
            — steering-route ip-prefix/length
            — no steering-route
        — outside
          — pool nat-pool-name [nat-group nat-group-id type pool-type
            [no-allocate] [create]
          — no pool nat-pool-name
            — address-range start-ip-addr end-ip-addr [create]
            — no address-range start-ip-address end-ip-address [
              — description description-string
              — no description
              — [no] drain
              — description description-string
              — no description
              — mode {auto|n apt}
              — no mode
              — port-forwarding-range range-end
              — no port-forwarding-range
              — port-reservation blocks num-blocks
              — port-reservation ports num-ports
              — no port-reservation
              — redundancy
                — export ip-prefix/length
                — no export
                — monitor ip-prefix/length
                — no monitor
              — [no] shutdown
              — subscriber-limit [1..65535]
              — no subscriber-limit
              — watermarks high percentage-high low percentage-low
              — no watermarks
            ]

```

## Subscriber Interface Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
    — subscriber-interface ip-int-name [fwd-service service-id fwd-subscriber-interface
      ip-int-name] [create]
    — no subscriber-interface ip-int-name
      — [no] address {ip-address/mask|ip-address netmask} [gw-ip-address ip-
        address] [populate-host-routes] [track-srrp srrp-instance [holdup-time
          msecs]]
      — [no] allow-unmatching-subnets
      — authentication-policy name
      — no authentication-policy
      — delayed-enable seconds [init-only]
      — no delayed-enable
      — description description-string
      — no description
      — dhcp
        — client-applications dhcp
        — client-applications pppoe
        — client-applications dhcp pppoe
        — no client-applications
        — description description-string
        — no description
        — filter filter-id
        — no filter
        — gi-address ip-address [src-ip-addr]
        — no gi-address
        — lease-populate nbr-of-leases
        — no lease-populate
        — [no] option
          — [no] vendor-specific-option
            — [no] client-mac-address
            — [no] sap-id
            — [no] service-id
            — string text
            — no string
            — [no] system-id
          — proxy-server
            — emulated-server ip-address
            — no emulated-server
            — lease-time [days days] [hrs hours] [min minutes] [sec
              seconds] [radius-override]
            — no lease-time
            — [no] shutdown
          — relay-unicast-msg release-update-src-ip
          — no relay-unicast-msg
          — server server1 [server2...(up to 8 max)]
          — no server
          — [no] shutdown
      — [no] group-interface ip-int-name
        — arp-host

```

- **host-limit** *max-num-hosts*
- **no host-limit**
- **min-auth-interval** *min-auth-interval*
- **no min-auth-interval**
- **sap-host-limit** *max-num-hosts-sap*
- **no sap-host-limit**
- **[no] shutdown**
- **[no] arp-populate**
- **arp-timeout** *seconds*
- **no arp-timeout**
- **authentication-policy** *name*
- **no authentication-policy**
- **description** *description-string*
- **no description**
- **dhcp**
  - **description** *description-string*
  - **no description**
  - **filter** *filter-id*
  - **no filter**
  - **gi-address** *ip-address* [*src-ip-addr*]
  - **no gi-address**
  - **lease-populate** *nbr-of-leases*
  - **no lease-populate**
  - **[no] match-circuit-id**
  - **[no] option**
    - **action** {**replace** | **drop** | **keep**}
    - **no action**
    - **circuit-id** [*ascii-tuple* | *ifindex* | *sap-id* | *vlan-ascii-tupl*]
    - **no circuit-id**
    - **remote-id** [*mac* | **string** *string*]
    - **no remote-id**
    - **[no] vendor-specific-option**
      - **[no] client-mac-address**
      - **[no] sap-id**
      - **[no] service-id**
      - **string** *text*
      - **no string**
      - **[no] system-id**
  - **proxy-server**
    - **emulated-server** *ip-address*
    - **no emulated-server**
    - **lease-time** [*days days*] [*hrs hours*] [*min minutes*] [*sec seconds*] [*radius-override*]
    - **no lease-time**
    - **[no] shutdown**
  - **relay-unicast-msg** *release-update-src-ip*
  - **no relay-unicast-msg**
  - **server** *server1* [*server2...*(up to 8 max)]
  - **no server**
  - **[no] shutdown**
  - **[no] trusted**
  - **user-db** *local-user-db-name*
  - **no user-db**
- **[no] enable-ingress-stats**



- **host-connectivity-verify** [*interval interval*] [*action {remove|alarm}*]
- **icmp**
  - [**no**] **mask-reply**
  - **redirects** [*number seconds*]
  - **no redirects**
  - **ttl-expired** [*number seconds*]
  - **no ttl-expired**
  - **unreachables** [*number seconds*]
  - **no unreachables**
- [**no**] **ipv6**
  - [**no**] **allow-unmatching-prefixes**
  - **delegated-prefix-length** *bits*
  - **delegated-prefix-length** *variable*
  - **no delegated-prefix-length**
  - [**no**] **dhcp6**
  - [**no**] **option**
    - **interface-id**
    - **interface-id** *ascii-tuple*
    - **interface-id** *ifindex*
    - **interface-id** *sap-id*
    - **interface-id** *string*
    - **no interface-id**
    - [**no**] **remote-id**
  - **no current-hop-limit**
  - [**no**] **managed-configuration**
  - **max-advertisement-interval** *seconds*
  - **no max-advertisement-interval**
  - **min-advertisement-interval** *seconds*
  - **no min-advertisement-interval**
  - **mtu** *bytes*
  - **no mtu**
  - [**no**] **other-stateful-configuration**
  - [**no**] **prefix-options**
    - [**no**] **autonomous**
    - **preferred-lifetime** [*seconds* | **infinite**]
    - **no preferred-lifetime**
    - **valid-lifetime** [*seconds* | **infinite**]
    - **no valid-lifetime**
  - **reachable-time** *milliseconds*
  - **no reachable-time**
  - **retransmit-time** *milliseconds*
  - **no retransmit-time**
  - **router-lifetime** *seconds*
  - **router-lifetime no-default-router**
  - **no router-lifetime**
  - [**no**] **proxy-server**
    - **renew-timer** *seconds*
    - **no renew-timer**
    - **rebind-timer** *seconds*
    - **no rebind-timer**
    - **preferred-lifetime** [*seconds* | **infinite**]
    - **no preferred-lifetime**
    - **valid-lifetime** [*seconds* | **infinite**]

- **no valid-lifetime**
- **client-applications** [**dhcp**] [**pppoe**]
- **no client-applications**
- [**no**] **shutdown**
- [**no**] **router-advertisements**
- **current-hop-limit** *hop-count*
- [**no**] **local-proxy-arp**
- [**no**] **mac** *ieee-address*
- [**no**] **pppoe**
  - **description** *description-string*
  - **no description**
  - **dhcp-client**
    - [**no**] **ccag-use-origin-sap**
  - **pap-chap-user-db** *local-user-db-name*
  - **no pap-chap-user-db**
  - **pppoe-policy** *pppoe-policy-name*
  - **no pppoe-policy**
  - **sap-session-limit** *sap-session-limit*
  - **no sap-session-limit**
  - **session-limit** *session-limit*
  - **no session-limit**
  - **user-db** *local-user-db-name*
  - **no user-db**
  - [**no**] **shutdown**
- [**no**] **proxy-arp-policy** *policy-name* [*policy-name...*(up to 5 max)]
- **redundant-interface** *red-ip-int-name*
- **no redundant-interface**
- [**no**] **remote-proxy-arp**
- [**no**] **sap** *sap-id*
  - **accounting-policy** *acct-policy-id*
  - **no accounting-policy** [*acct-policy-id*]
  - **anti-spoof** {**ip** | **ip-mac** | **nh-mac**}
  - **no anti-spoof**
  - **app-profile** *app-profile-name*
  - **no app-profile**
  - **atm**
    - **egress**
      - **traffic-desc** *traffic-desc-profile-id*
      - **no traffic-desc**
    - **encapsulation** *atm-encap-type*
    - **ingress**
      - **traffic-desc** *traffic-desc-profile-id*
      - **no traffic-desc**
    - **oam**
      - [**no**] **alarm-cells**
      - [**no**] **periodic-loopback**
  - **calling-station-id** *calling-station-id*
  - **no calling-station-id**
  - [**no**] **collect-stats**
  - **cpu-protection** [**mac-monitoring**] | [**eth-cfm-monitoring** [**aggregate**][**car**]]
  - **no cpu-protection**
  - **default-host** *ip-address/mask* **next-hop** *next-hop-ip*
  - **no default-host** *ip-address/mask*

- **description** *description-string*
- **no description**
- **dist-cpu-protection** *policy-name*
- **no dist-cpu-protection**
- **egress**
  - **agg-rate-limit** *agg-rate* [queue-frame-based-accounting]
  - **no agg-rate-limit** *agg-rate*
  - **filter ip** *ip-filter-id*
  - **filter ipv6** *ipv6-filter-id*
  - **no filter** [*ip ip-filter-id*] [*ipv6 ipv6-filter-id*]
  - **no filter**
  - [no] **qinq-mark-top-only**
  - **qos** *policy-id* [**port-redirect-group** *queue-group-name* **instance** *instance-id*]
  - **no qos**
  - **scheduler-policy** *scheduler-policy-name*
  - **no scheduler-policy**
- **eth-cfm**
  - **mep** *mep-id* **domain** *md-index* **association** *ma-index* [**direction** {**up** | **down**}]
  - **no mep** *mep-id* **domain** *md-index* **association** *ma-index*
    - [no] **ais-enable**
    - [no] **ccm-enable**
    - **ccm-ltm-priority** *priority*
    - **no ccm-ltm-priority**
    - [no] **description**
    - [no] **eth-test-enable**
      - [no] **test-pattern** {**all-zeros** | **all-ones**} [**crc-enable**]
    - **fault-propagation-enable** {**use-if-tlv** | **suspend-ccm**}
    - **no fault-propagation-enable**
    - **low-priority-defect** {**allDef** | **macRemErrXcon** | **remErrXcon** | **errXcon** | **xcon** | **noXcon**}
    - **one-way-delay-threshold** *seconds*
    - [no] **shutdown**
    - **tunnel-fault** [**accept** | **ignore**]
- **igmp-host-tracking**
  - **expiry-time** *expiry-time*
  - **no expiry-time**
  - **import** *policy-name*
  - **no import**
  - **max-num-groups** *max-num-groups*
  - **no max-num-groups**
  - **max-num-sources** *max-num-sources*
  - **no max-num-sources**
- **ingress**
  - **filter ip** *ip-filter-id*
  - **filter ipv6** *ipv6-filter-id*
  - **no filter** [*ip ip-filter-id*] [*ipv6 ipv6-filter-id*]
  - **no filter**

- **match-qinq-dot1p** {top | bottom}
- **no match-qinq-dot1p**
- **qos** *policy-id* [shared-queuing | multipoint-shared][fp-redirect-group *queue-group-name* instance *instance-id*]
- **no qos**
- **scheduler-policy** *scheduler-policy-name*
- **no scheduler-policy**
- **lag-link-map-profile** *link-map-profile-id*
- **no lag-link-map-profile**
- **multi-service-site** *customer-site-name*
- **no multi-service-site**
- **static-host ip** *ip/did-address* [mac *ieee-address*] [create]
- **static-host mac** *ieee-address* [create]
- **no static-host** [ip *ip-address*] mac *ieee-address*
- **no static-host all** [force]
- **no static-host ip** *ip-address*
  - **ancp-string** *ancp-string*
  - **no ancp-string**
  - **app-profile** *app-profile-name*
  - **no app-profile**
  - **inter-dest-id** *intermediate-destination-id*
  - **no inter-dest-id**
  - **managed-routes**
    - **route** {*ip-prefix/length* | *ip-prefix net-mask*} [create]
    - **no route** {*ip-prefix/length* | *ip-prefix net-mask*}
- [no] **shutdown**
- **sla-profile** *sla-profile-name*
- **no sla-profile**
- **sub-profile** *sub-profile-name*
- **no sub-profile**
- **subscriber** *sub-ident*
- **no subscriber**
- [no] **subscriber-sap-id**
- [no] **shutdown**
- [no] **sub-sla-mgmt**
  - **def-sla-profile** *default-sla-profile-name*
  - **no def-sla-profile**
  - **def-sub-profile** *default-subscriber-profile-name*
  - **no def-sub-profile**
  - **multi-sub-sap** *subscriber-limit*
  - **no multi-sub-sap**
  - [no] **shutdownt**
  - **single-sub-parameters**
    - **non-sub-traffic** *sub-profile sub-profile-name sla-profile sla-profile-name* [subscriber *sub-ident-string*]
    - **no non-sub-traffic**
    - [no] **profiled-traffic-only**
- **sub-ident-policy** *sub-ident-policy-name*
- **no sub-ident-policy**
- [no] **shutdown**

- [no] **srrp** *srrp-id*
  - [no] **bfd-enable** [*service-id*] **interface** *interface-name*  
**dst-ip** *ip-address*
  - **description** *description-string*
  - **no description**
  - **generate-garp-on-outer-vlan**
  - **no generate-garp-on-outer-vlan**
  - **gw-mac** *mac-address*
  - **no gw-mac**
  - **keep-alive-interval** *interval*
  - **no keep-alive-interval**
  - **message-path** *sap-id*
  - **no message-path**
  - [no] **policy** *vrrp-policy-id*
  - **priority** *priority*
  - **no priority**
  - **generate-garp-on-outer-vlan**
  - **no generate-garp-on-outer-vlan**
  - [no] **shutdown**
- [no] **wpp**
  - **initial-app-profile** *profile-name*
  - **no initial-app-profile**
  - **initial-sla-profile** *profile-name*
  - **no initial-sla-profile**
  - **initial-sub-profile** *profile-name*
  - **no initial-sub-profile**
  - **portal router** *router-instance* **name** *wpp-portal-name*
  - **no portal**
  - [no] **restore-disconnected**
  - [no] **shutdown**
- [no] **urpf-check**
  - **mode** {**strict** | **loose** | **strict-no-ecmp**}
- [no] **ipv6**
  - [no] **delegated-prefix-length** *prefix-length*
  - [no] **subscriber-prefixes**
    - **prefix** *ipv6-address/prefix-length* [**pd**] [**wan-host**]
    - **no prefix** *ipv6-address/prefix-length*
- [no] **private-retail-subnets**
- [no] **shutdown**

## Interface Commands

```

config
  — service
    — vprn
      — [no] interface ip-int-name
        — [no] active-cpm-protocols
        — address ip-address[/mask] [netmask] [broadcast {all-ones | host-ones}]
        — no address [ip-address/mask | ip-address netmask]
        — [no] allow-directed-broadcasts
        — [no] arp-populate
        — arp-timeout [seconds]
        — no arp-timeout
        — authentication-policy name
        — no authentication-policy
        — bfd transmit-interval [receive receive-interval] [multiplier multiplier][echo-receive echo-interval] [type cpm-np]
        — no bfd
        — cflowd {acl | interface} [direction]
        — no cflowd
        — cpu-protection policy-id
        — no cpu-protection
        — delayed-enable seconds
        — no delayed-enable
        — description description-string
        — no description [description-string]
        — dhcp
          — description description-string
          — no description
          — gi-address ip-address [src-ip-addr]
          — no gi-address
          — lease-populate [nbr-of-leases]
          — no lease-populate
          — [no] option
            — action {replace | drop | keep}
            — no action
            — circuit-id [ascii-tuple | ifindex | sap-id | vlan-ascii-tuple]
            — no circuit-id
            — remote-id [mac | string string]
            — [no] vendor-specific-option
              — [no] client-mac-address
              — [no] pool-name
              — [no] sap-id
              — [no] service-id
              — string text
              — no string
              — [no] system-id
          — proxy-server
            — emulated-server ip-address
            — no emulated-server
            — lease-time [days days] [hrs hours] [min minutes] [sec seconds] [radius-override]
            — no lease-time
            — [no] shutdown

```

- **[no] relay-plain-bootp**
- **relay-unicast-msg release-update-src-ip**
- **no relay-unicast-msg**
- **server** *server1* [*server2*...(up to 8 max)]
- **no server**
- **[no] shutdown**
- **[no] trusted**
- **[no] use-arp**
- **dynamic-tunnel-redundant-next-hop** *ip-address*
- **no dynamic-tunnel-redundant-next-hop**
- **[no] enable-ingress-stats**
- **[no] enable-mac-accounting**
- **host-connectivity-verify** [**source** {**vrrp** | **interface**}] [**interval** *interval*]  
[**action** {**remove** | **alarm**}]
- **icmp**
  - **[no] mask-reply**
  - **redirects** *number seconds*
  - **no redirects** [*number seconds*]
  - **ttl-expired** *number seconds*
  - **no ttl-expired** [*number seconds*]
  - **unreachables** *number seconds*
  - **no unreachables** [*number seconds*]
- **ip-mtu** *octets*
- **no ip-mtu**
- **ipcp**
  - **dns** *ip-address* [**secondary** *ip-address*]
  - **dns secondary** *ip-address*
  - **no dns** [*ip-address*] [**secondary** *ip-address*]
  - **peer-ip-address** *ip-address*
  - **no peer-ip-address**
- **[no] ipv6**
  - **address** *ipv6-address/prefix-length* [**eui-64**] [**preferred**]
  - **no address** *ipv6-address/prefix-length*
  - **bfd** *transmit-interval* [**receive** *receive-interval*] [**multiplier** *multiplier*][**echo-receive** *echo-interval*] [**type** **cpm-np**]
  - **no bfd**
  - **[no] dhcp6-relay**
    - **lease-populate** [*nbr-of-leases*]
    - **no lease-populate**
    - **[no] neighbor-resolution**
  - **[no] dhcp6-server**
  - **icmp6**
  - **[no] local-proxy-nd**
  - **neighbor** *ipv6-address mac-address*
  - **no neighbor** *ipv6-address*
  - **proxy-nd-policy** *policy-name* [*policy-name*...(up to 5 max)]
  - **no proxy-nd-policy**
  - **[no] qos-route-lookup**
  - **[no] urpf-check**
    - **mode** {**strict** | **loose** | **strict-no-ecmp**}
    - **no mode**
- **local-dhcp-server** *local-server-name*
- **no local-dhcp-server**

- **[no] local-proxy-arp**
- **[no] loopback**
- **mac** *ieee-address*
- **no mac** [*ieee-address*]
- **monitor-oper-group** *name*
- **no monitor-oper-group**
- **[no] proxy-arp-policy**
- **qos-route-lookup** [*source* | *destination*]
- **no qos-route-lookup**
- **[no] remote-proxy-arp**
- **secondary** {*ip-address/mask* | *ip-address netmask*} [**broadcast all-ones** | **host-ones**] [**igp-inhibit**]
- **no secondary** {*ip-address/mask* | *ip-address netmask*}
- **[no] shutdown**
- **static-arp** *ip-address ieee-address*
- **no static-arp** *ip-address* [*ieee-address*]
- **static-tunnel-redundant-next-hop** *ip-address*
- **no static-tunnel-redundant-next-hop**
- **tos-marking-state** {**trusted** | **untrusted**}
- **no tos-marking-state**
- **unnumbered** [*ip-int-name* | *ip-address*]
- **no unnumbered**
- **[no] urpf-check**
  - **mode** {**strict** | **loose** | **strict-no-ecmp**}
  - **no mode**
- **vpls** {*service-id* | *service-name*}
- **no vpls**
  - **egress**
    - **reclassify-using-qos**
  - **ingress**
    - **v4-routed-override-filter** *ipv6-filter-id*
    - **no v4-routed-override-filter**
    - **v6-routed-override-filter** *ipv6-filter-id*
    - **no v6-routed-override-filter**



## Network Interface Commands

```

config
  — service
    — vprn
      — network-interface interface-name [create]
      — no network-interface interface-name
        — address ip-address[/mask] [netmask] [broadcast {all-ones | host-ones}]
        — no address
        — [no] allow-directed-broadcasts
        — [no] arp-populate
        — arp-timeout [seconds]
        — no arp-timeout
        — bfd transmit-interval [receive receive-interval] [multiplier multiplier][echo-receive echo-interval] [type cpm-np]
        — no bfd
        — cflowd {acl | interface} [direction]
        — no cflowd
        — cpu-protection policy-id [mac-monitoring] | [eth-cfm-monitoring][aggregate][car]
        — no cpu-protection
        — delayed-enable seconds
        — no delayed-enable
        — description description-string
        — no description [description-string]
        — dist-cpu-protection policy-name
        — no dist-cpu-protection
        — egress
          — filter ip ip-filter-id
          — filter ipv6 ipv6-filter-id
          — no filter [ip ip-filter-id] [ipv6 ipv6-filter-id]
        — icmp
          — [no] mask-reply
          — redirects number seconds
          — no redirects [number seconds]
          — ttl-expired number seconds
          — no ttl-expired [number seconds]
          — unreachables number seconds
          — no unreachables [number seconds]
        — ingress
          — filter ip ip-filter-id
          — filter ipv6 ipv6-filter-id
          — no filter [ip ip-filter-id] [ipv6 ipv6-filter-id]
          — [no] flowspec-ipv6
          — [no] flowspec-ipv6
        — lag lag-id[:encap-val]
        — no lag
        — [no] loopback
        — lsr-load-balancing hashing-algorithm
        — no lsr-load-balancing
        — mac ieee-address
        — no mac
        — [no] ntp-broadcast

```

- **qos** *network-policy-id* **port-redirect-group** *queue-group-name* **egress-instance** *instance-id* **fp-redirect-group** *queue-group-name* **ingress-instance** *instance-id*
- **no-qos**
- **secondary** {*ip-address/mask* | *ip-address netmask*} [**broadcast all-ones** | **host-ones**] [**igp-inhibit**]
- **no secondary** {*ip-address/mask* | *ip-address netmask*}
- **static-arp** *ieee-mac-address* *unnumbered*
- **no static-arp** *unnumbered*
- **tos-marking-state** {**trusted** | **untrusted**}
- **no tos-marking-state**
- [**no**] **urpf-check**
  - **mode** {**strict** | **loose** | **strict-no-ecmp**}

## Interface Spoke SDP Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
    — [no] interface ip-int-name
      — spoke-sdp sdp-id [:vc-id] vc-type {ether|pipe} [create]
      — no spoke-sdp sdp-id [:vc-id] vc-type {ether|pipe} [create]
        — arp arpId type type
        — no arp
        — accounting-policy acct-policy-id
        — no accounting-policy
        — app-profile app-profile-name
        — no app-profile
        — [no] collect-stats
        — egress
          — filter ip ip-filter-id
          — filter ipv6 ipv6-filter-id}
          — no filter
          — qos network-policy-id port-redirect-group queue-
            group-name [instance instance-id]
          — no qos
          — vc-label egress-vc-label
          — no vc-label [egress-vc-label]
        — eth-cfm
          — mep mep-id domain md-index association ma-index
            [direction {up | down}]
          — no mep mep-id domain md-index association ma-
            index
            — [no] ais-enable
            — [no] ccm-enable
            — ccm-ltm-priority priority
            — no ccm-ltm-priority
            — ccm-padding-size ccm-padding
            — no ccm-padding-size ccm-padding
            — [no] description
            — [no] eth-test-enable
              — [no] test-pattern {all-zeros | all-ones}
                [crc-enable]
            — fault-propagation-enable {use-if-tlv | suspend-
              ccm}
            — no fault-propagation-enable
            — low-priority-defect {allDef | macRemErrXcon |
              remErrXcon | errXcon | xcon | noXcon}
            — one-way-delay-threshold seconds
          — [no] flowspec
          — [no] flowspec-ipv6
          — [no] hash-label
        — ingress
          — filter ip ip-filter-id
          — filter ipv6 ipv6-filter-id}
          — no filter
          — [no] flowspec

```

- [no] **flowspec**
- **qos** *network-policy-id* **fp-redirect-group** *queue-group-name* **instance** *instance-id*
- **no qos**
- **vc-label** *ingress-vc-label*
- **no vc-label** [*ingress-vc-label*]
- [no] **shutdown**
- **transit-policy** *ip-aasub-policy-id*
- **no transit-policy**

## Interface VRRP Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — interface ip-int-name
        — ipv6
          — vrrp virtual-router-id [owner]
          — no vrrp virtual-router-id
            — [no] backup ip-address
            — bfd-enable interface interface-name dst-ip ip-address
            — bfd-enable service-id interface interface-name dst-ip
              ip-address
            — no bfd-enable interface interface-name dst-ip ip-
              address
            — no bfd-enable service-id interface interface-name
              dst-ip ip-address
            — init-delay seconds
            — no init-delay
            — mac ieee-address
            — no mac
            — [no] master-int-inherit
            — message-interval {[seconds] [milliseconds millisec-
              onds]}
            — no message-interval
            — [no] ping-reply
            — policy vrrp-policy-id
            — no policy
            — [no] preempt
            — priority priority
            — no priority
            — [no] shutdown
            — [no] ssh-reply
            — [no] standby-forwarding
            — [no] telnet-reply
            — [no] traceroute-reply
          — vrrp virtual-router-id [owner]
          — no vrrp virtual-router-id
            — authentication-key {authentication-key | hash-key} [hash |
              hash2]
            — no authentication-key
            — authentication-type {password | message-digest}
            — no authentication-type
            — [no] backup ip-address
            — [no] bfd-enable [service-id] interface interface-name dst-ip ip-
              address
            — init-delay seconds
            — no init-delay
            — mac ieee-address
            — no mac
            — [no] master-int-inherit
            — message-interval {[seconds] [milliseconds milliseconds]}
            — no message-interval

```

- [no] ping-reply
- policy *vrrp-policy-id*
- no policy
- [no] preempt
- priority *priority*
- no priority
- [no] shutdown
- [no] ssh-reply
- [no] standby-forwarding
- [no] telnet-reply
- [no] traceroute-reply

## Interface SAP Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — [no] interface ip-int-name [create] [tunnel]
        — [no] sap sap-id
          — arp aarpId type type
          — no arp
          — accounting-policy acct-policy-id
          — no accounting-policy [acct-policy-id]
          — anti-spoof {ip | mac | ip-mac}
          — no anti-spoof
          — app-profile app-profile-name
          — no app-profile
          — atm
            — egress
              — traffic-desc traffic-desc-profile-id
              — no traffic-desc
            — encapsulation atm-encap-type
            — ingress
              — traffic-desc traffic-desc-profile-id
              — no traffic-desc
            — oam
              — [no] alarm-cells
              — [no] periodic-loopback
          — calling-station-id calling-station-id
          — no calling-station-id
          — [no] collect-stats
          — cpu-protection policy-id [mac-monitoring][eth-cfm-monitoring [aggregate] [car]]
          — no cpu-protection
          — description description-stri
          — description description-string
          — no description [description-string]
          — dist-cpu-protection policy-name
          — no dist-cpu-protection
          — egress
            — agg-rate-limit agg-rate [queue-frame-based-accounting]
            — no agg-rate-limit agg-rate
            — filter ip ip-filter-id
            — no filter [ip ip-filter-id]
            — [no] hsmda-queue-override
              — secondary-shaper secondary-shaper-name
              — no secondary-shaper
              — wrr-policy hsmda-wrr-policy-name
              — no wrr-policy
              — packet-byte-offset {add add-bytes | subtract sub-bytes}
              — no packet-byte-offset
              — queue queue-id
              — no queue queue-id

```

- **wrr-weight** *weight*
- **no wrr-weight**
- **mbs** *size* {[bytes | kilobytes] | default}
- **no mbs**
- **rate** *pir-rate*
- **no rate**
- **slope-policy** *hsmda-slope-policy-name allowable*
- **no slope-policy**
- [no] **qinq-mark-top-only**
- **qos** *policy-id* [**port-redirect-group** *queue-group-name* **instance** *instance-id*]
- **no qos**
- [no] **queue-override**
  - [no] **queue** *queue-id*
    - **adaptation-rule** [**pir** *adaptation-rule*] [**cir** *adaptation-rule*]
    - **no adaptation-rule**
    - **avg-frame-overhead** *percentage*
    - **no avg-frame-overhead**
    - **cbs** *size-in-kbytes*
    - **no cbs**
    - **high-prio-only** *percent*
    - **no high-prio-only**
    - **mbs** {*size-in-kbytes* | default}
    - **no mbs**
    - **rate** *pir-rate* [**cir** *cir-rate*]
    - **no rate**
- [no] **scheduler-override**
  - [no] **scheduler** *scheduler-name*
    - **rate** *pir-rate* [**cir** *cir-rate*]
    - **no rate**
  - **scheduler-policy** *scheduler-policy-name*
  - **no scheduler-policy**
- **eth-cfm**
  - **mep** *mep-id domain md-index association ma-index* [**direction** {up | down}]
  - **no mep** *mep-id domain md-index association ma-index*
    - [no] **ais-enable**
    - [no] **ccm-enable**
    - **ccm-ltm-priority** *priority*
    - **no ccm-ltm-priority**
    - [no] **ccm-padding-size** *ccm-padding*
    - [no] **description**
    - [no] **eth-test-enable**
      - [no] **test-pattern** {all-zeros | all-ones} [**crc-enable**]
    - **fault-propagation-enable** {use-if-tlv | suspend-ccm}
    - **no fault-propagation-enable**
    - **low-priority-defect** {allDef | macRemErrXcon | remErrXcon | errXcon | xcon | noXcon}
    - **one-way-delay-threshold** *seconds*
    - **tunnel-fault** [accept | ignore]



- **frame-relay**
  - [no] **frf-12**
    - **ete-fragment-threshold** *threshold*
    - **no ete-fragment-threshold**
    - [no] **interleave**
    - **scheduling-class** *class-id*
    - **no scheduling-class**
- [no] **flowspec**
- [no] **flowspec-ipv6**
- **host-lockout-policy** *policy-name*
- **no host-lockout-policy**
- [no] **host-shutdown**
- **ingress**
  - **filter ip** *ip-filter-id*
  - **no filter** [*ip ip-filter-id*]
  - [no] **flowspec**
  - [no] **flowspec**
  - **match-qinq-dot1p** {*top* | *bottom*}
  - **qos** *policy-id* [*shared-queuing* | *multipoint-shared*][*fp-redirect-group queue-group-name* *instance instance-id*]
  - **no qos**
  - [no] **queue-override**
    - [no] **queue** *queue-id*
      - **adaptation-rule** [*pir adaptation-rule*] [*cir adaptation-rule*]
      - **no adaptation-rule**
      - **avg-frame-overhead** *percentage*
      - **no avg-frame-overhead**
      - **cbs** *size-in-kbytes*
      - **no cbs**
      - **high-prio-only** *percent*
      - **no high-prio-only**
      - **mbs** {*size-in-kbytes* | **default**}
      - **no mbs**
      - **rate** *pir-rate* [*cir cir-rate*]
      - **no rate**
  - [no] **scheduler-override**
    - [no] **scheduler** *scheduler-name*
      - **rate** *pir-rate* [*cir cir-rate*]
      - **no rate**
  - **scheduler-policy** *scheduler-policy-name*
  - **no scheduler-policy**
- **ip-tunnel** *name* [**create**]
- **no ip-tunnel** *name*
  - **backup-remote-ip** *ip-address*
  - **no backup-remote-ip**
  - [no] **clear-df-bit**
  - **delivery-service** *service-id*
  - **no delivery-service**
  - **description** *description-string*
  - **no description**
  - **dscp** *dscp-name*
  - **no dscp**

- **remote-ip** *ip-address*
- **no remote-ip**
- **source** *ip-address*
- **no source**
- **lag-link-map-profile** *lag-link-map-profile-id*
- **no lag-link-map-profile**
- **multi-service-site** *customer-site-name*
- **no multi-service-site**
- **[no] shutdown**
- **static-host ip** *ip/did-address* [**mac** *ieee-address*] [**create**]
- **static-host mac** *ieee-address* [**create**]
- **no static-host** [**ip** *ip-address*] **mac** *ieee-address*
- **no static-host all** [**force**]
- **no static-host ip** *ip-address*
  - **ancp-string** *ancp-string*
  - **no ancp-string**
  - **app-profile** *app-profile-name*
  - **no app-profile**
  - **inter-dest-id** *intermediate-destination-id*
  - **no inter-dest-id**
  - **[no] shutdown**
  - **sla-profile** *sla-profile-name*
  - **no sla-profile**
  - **sub-profile** *sub-profile-name*
  - **no sub-profile**
  - **subscriber** *sub-ident*
  - **no subscriber**
  - **[no] subscriber-sap-id**
- **tod-suite** *tod-suite-name*
- **no tod-suite**
- **transit-policy** *ip-aasub-policy-id*
- **transit-policy prefix** *prefix-aasub-policy-id*
- **no transit-policy**

## Routed VPLS Commands

For more information, refer to [Routed VPLS and I-VPLS](#) on page 698.

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — interface ip-interface-name [create]
      — no interface ip-interface-name
        — vpls service-name
        — no vpls
          — ingress
            — v4-routed-override-filter ipv4-filter-id
            — no v4-routed-override-filter
            — v6-routed-override-filter ipv6-filter-id
            — no v6-routed-override-filter
          — egress
            — reclassify-using-qos sap-egress-qos-id
            — no reclassify-using-qos

```

## BGP Configuration Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — [no] bgp-shared-queue
      — [no] bgp
        — [no] advertise-inactive
        — [no] aggregator-id-zero
        — [no] always-compare-med
        — auth-keychain name
        — authentication-key [authentication-key | hash-key] [hash | hash2]
        — no authentication-key
        — backup-path [ipv4] [ipv6]
        — best-path-selection
          — always-compare-med [zero|infinity]
          — always-compare-med strict-as {zero|infinity}
          — no always-compare-med
          — as-path-ignore [ipv4] [ipv6]
          — no as-path-ignore
          — [no] deterministic-med
          — [no] ignore-nh-metric
          — [no] ignore-router-id
        — [no] bfd-enable
        — cluster cluster-id
        — no cluster
        — [no] connect-retry seconds
        — [no] damp-peer-oscillations [idle-hold-time initial-wait second-wait
          max-wait] [error-interval minutes]
        — [no] damping
        — description description-string
        — no description
        — [no] disable-4byte-asn
        — [no] disable-client-reflect
        — disable-communities [standard] [extended]
        — no disable-communities
        — [no] disable-fast-external-failover
        — [no] eibgp-loadbalance
        — enable-bgp-vpn-backup [ipv4] [ipv6]
        — no enable-bgp-vpn-backup
        — [no] enable-peer-tracking
        — error-handling
          — [no] update-fault-tolerance
        — export policy-name [policy-name...(upto 5 max)]
        — no export
        — family [ipv4][ipv6] [mcast-ipv4] [flow-ipv4]
        — no family
        — flowspec-validate
        — [no] flowspec-validate
        — family
        — [no] graceful-restart
          — enable-notification
          — restart-time seconds
          — [no] stale-routes-time time

```

- **hold-time** *seconds* [**min** *seconds2*]
- **no hold-time**
- [**no**] **ibgp-multipath**
- **import** *policy-name* [*policy-name...*(up to 5 max)]
- **no import**
- **keepalive** *seconds*
- **no keepalive**
- **local-as** *as-number* [**private**]
- **no local-as**
- **local-preference** *local-preference*
- **no local-preference**
- **loop-detect** {**drop-peer** | **discard-route** | **ignore-loop**| **off**}
- **no loop-detect**
- **med-out** {**number** | **igp-cost**}
- **no med-out**
- **min-as-origination** *seconds*
- **no min-as-origination**
- **min-route-advertisement** *seconds*
- **no min-route-advertisement**
- **multihop** *ttl-value*
- **no multihop**
- **multipath** *max-paths* [**eibgp**]
- **no multipath**
- **next-hop-resolution**
  - **policy** *policy-name*
- **peer-tracking-policy** *policy-name*
- **preference** *preference*
- **no preference**
- [**no**] **rapid-update** {[**l2-vpn**] [**mvpn-ipv4**]}
- [**no**] **rapid-withdrawal**
- [**no**] **remove-private**
- **router-id** *ip-address*
- **no router-id**
- [**no**] **shutdown**
- [**no**] **split-horizon**
- [**no**] **group** *name* [**dynamic-peer**]
  - [**no**] **advertise-inactive**
  - [**no**] **aggregator-id-zero**
  - [**no**] **as-override**
  - **auth-keychain** *name*
  - **authentication-key** [*authentication-key* | *hash-key*] [**hash** | **hash2**]
  - **no authentication-key**
  - [**no**] **bfd-enable**
  - **cluster** *cluster-id*
  - **no cluster**
  - **connect-retry** *seconds*
  - **no connect-retry**
  - [**no**] **damp-peer-oscillations** [**idle-hold-time** *initial-wait seconds* *max-wait*] [**error-interval** *minutes*]
  - [**no**] **damping**
  - **description** *description-string*
  - **no description**
  - [**no**] **disable-4byte-asn**

- **[no] disable-capability-negotiation**
- **[no] disable-client-reflect**
- **disable-communities** [standard] [extended]
- **no disable-communities**
- **[no] disable-fast-external-failover**
- **[no] enable-peer-tracking**
- **error-handling**
  - **[no] update-fault-tolerance**
- **export** *policy-name* [*policy-name...*(upto 5 max)]
- **no export**
- **family** [ipv4][ipv6] [mcast-ipv4] [flow-ipv6] [flow-ipv4]
- **no family**
- **flowspec-validate**
- **[no] flowspec-validate**
- **[no] graceful-restart**
  - **enable-notification**
  - **restart-time** *seconds*
  - **[no] stale-routes-time** *time*
- **hold-time** *seconds* [**min** *seconds2*]
- **no hold-time**
- **import** *policy-name* [*policy-name...*(upto 5 max)]
- **no import**
- **keepalive** *seconds*
- **no keepalive**
- **local-address** *ip-address*
- **no local-address**
- **local-as** *as-number* [private] [no-prepend-global-as]
- **no local-as**
- **local-preference** *local-preference*
- **no local-preference**
- **loop-detect** {drop-peer|discard-route|ignore-loop|off}
- **no loop-detect**
- **med-out** {number | igp-cost}
- **no med-out**
- **min-as-origination** *seconds*
- **no min-as-origination**
- **min-route-advertisement** *seconds*
- **no min-route-advertisement**
- **multihop** *ttl-value*
- **no multihop**
- **[no] next-hop-self**
- **[no] passive**
- **peer-as** *as-number*
- **no peer-as**
- **preference** *preference*
- **no preference**
- **prefix-limit** *limit* [log-only] [threshold *percent*] [idle-timeout { *minutes* | forever}]
- **no prefix-limit**
- **[no] remove-private**
- **[no] shutdown**
- **ttl-security** *min-ttl-value*
- **no ttl-security**
- **type** {internal | external}
- **no type**

- [no] **updated-error-handling**
- [no] **neighbor** *ip-address*
  - [no] **advertise-inactive**
  - [no] **aggregator-id-zero**
  - [no] **as-override**
  - **auth-keychain** *name*
  - **authentication-key** [*authentication-key* | *hash-key*]  
[**hash** | **hash2**]
  - **no authentication-key**
  - [no] **bfd-enable**
  - **cluster** *cluster-id*
  - **no cluster**
  - **connect-retry** *seconds*
  - **no connect-retry**
  - [no] **damp-peer-oscillations** [**idle-hold-time** *initial-wait* *second-wait* *max-wait*] [**error-interval** *minutes*]
  - [no] **damping**
  - **description** *description-string*
  - **no description**
  - [no] **disable-4byte-asn**
  - [no] **disable-capability-negotiation**
  - [no] **disable-client-reflect**
  - **disable-communities** [**standard**] [**extended**]
  - **no disable-communities**
  - [no] **disable-fast-external-failover**
  - [no] **enable-peer-tracking**
  - **error-handling**
    - [no] **update-fault-tolerance**
  - **export** *policy-name* [*policy-name...*(upto 5 max)]
  - **no export**
  - [no] **graceful-restart**
    - **enable-notification**
    - **restart-time** *seconds*
    - [no] **stale-routes-time** *time*
    - [no] **stale-routes-time** *time*
  - **family** [**ipv4**][**ipv6**] [**mcast-ipv4**] [**flow-ipv6**] [**flow-ipv4**]
  - **no family**
  - **flowspec-validate**
  - [no] **flowspec-validate**
  - **hold-time** *seconds* [**min** *seconds2*]
  - **no hold-time**
  - **import** *policy-name* [*policy-name...*(upto 5max)]
  - **no import**
  - **family** [**ipv4**][**ipv6**]**keepalive** *seconds*
  - **no keepalive**
  - **local-address** *ip-address*
  - **no local-address**
  - **local-as** *as-number* [**private**] [**no-prepend-global-as**]
  - **no local-as**
  - **local-preference** *local-preference*
  - **no local-preference**
  - **loop-detect** {**drop-peer** | **discard-route** | **ignore-loop** | **off**}

- **no loop-detect**
- **med-out** {number | igp-cost}
- **no med-out**
- **min-as-origination** *seconds*
- **no min-as-origination**
- **min-route-advertisement** *seconds*
- **no min-route-advertisement**
- **multihop** *ttl-value*
- **no multihop**
- [no] **next-hop-self**
- [no] **passive**
- **peer-as** *as-number*
- **no peer-as**
- **preference** *preference*
- **no preference**
- **prefix-limit** *limit imit* [log-only] [**threshold** *percent*]  
[idle-timeout { *minutes* | forever}]
- **no prefix-limit**
- [no] **remove-private**
- [no] **shutdown**
- **ttl-security** *min-ttl-value*
- **no ttl-security**
- **type** {internal | external}
- **no type**
- [no] **updated-error-handling**



## OSPF Configuration Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — [no] ospf
      — ospf3 [instance-id] [router-id]
      — [no] ospf3 instance-id
        — [no] area area-id
          — area-range ip-prefix/mask [advertise | not-advertise]
          — no area-range ip-prefix/mask
          — [no] blackhole-aggregate
          — [no] interface ip-int-name [secondary]
            — [no] advertise-subnet
            — authentication bidirectional sa-name
            — authentication inbound sa-name outbound sa-name
            — no authentication
            — authentication-key [authentication-key | hash-key]
              [hash | hash2]
            — no authentication-key
            — authentication-type {password | message-digest}
            — no authentication-type
            — bfd-enable [remain-down-on-failure]
            — no bfd-enable
            — dead-interval seconds
            — no dead-interval
            — [no] graceful-restart
              — helper-disable
            — hello-interval seconds
            — no hello-interval
            — interface-type {broadcast | point-to-point}
            — no interface-type
            — [no] loopfree-alternate-exclude
            — lsa-filter-out [all | except-own-rtrlsa | except-own-
              rtrlsa-and-defaults]
            — [no] lsa-filter-out
            — message-digest-key key-id md5 [key | hash-key] [hash
              | hash2]
            — no message-digest-key key-id
            — metric metric
            — no metric
            — mtu bytes
            — no mtu
            — [no] passive
            — priority number
            — no priority
            — retransmit-interval seconds
            — no retransmit-interval
            — [no] shutdown
            — transit-delay seconds
            — no transit-delay
          — key-rollover-interval key-rollover-interval
          — [no] loopfree-alternate-exclude

```

- [no] **nssa**
  - **area-range** *ip-prefix/mask* [**advertise** | **not-advertise**]
  - **no area-range** *ip-prefix/mask*
  - **originate-default-route** [**type-7**]
  - **no originate-default-route**
  - [no] **redistribute-external**
  - [no] **summaries**
- [no] **sham-link** *ip-int-name ip-address*
  - **authentication-key** [*authentication-key* | *hash-key*] [**hash** | **hash2**]
  - **no authentication-key**
  - **authentication-type** {**password** | **message-digest**}
  - **no authentication-type**
  - **dead-interval** *seconds*
  - **no dead-interval**
  - **hello-interval** *seconds*
  - **no hello-interval**
  - **message-digest-key** *key-id md5* [*key* | *hash-key*] [**hash** | **hash2**]
  - **no message-digest-key** *key-id*
  - **metric** *metric*
  - **no metric**
  - **retransmit-interval** *seconds*
  - **no retransmit-interval**
  - [no] **shutdown**
  - **transit-delay** *seconds*
  - **no transit-delay**
- [no] **stub**
  - **default-metric** *metric*
  - **no default-metric**
  - [no] **summaries**
- [no] **virtual-link** *router-id transit-area area-id*
  - **authentication-key** [*authentication-key* | *hash-key*] [**hash** | **hash2**]
  - **no authentication-key**
  - **authentication-type** {**password** | **message-digest**}
  - **no authentication-type**
  - **dead-interval** *seconds*
  - **no dead-interval**
  - **hello-interval** *seconds*
  - **no hello-interval**
  - **message-digest-key** *key-id md5* [*key* | *hash-key*] [**hash** | **hash2**]
  - **no message-digest-key** *key-id*
  - **retransmit-interval** *seconds*
  - **no retransmit-interval**
  - [no] **shutdown**
  - **transit-delay** *seconds*
  - **no transit-delay**
- [no] **compatible-rtc1583**
- **export** *policy-name* [*policy-name...*(up to 5 max)]
- **no export**
- **export-limit** *number* [**log** *percentage*]
- **no export-limit**
- **external-db-overflow** *limit seconds*

- **no external-db-overflow**
- **external-preference** *preference*
- **no external-preference**
- **[no] graceful-restart**
  - **[no] helper-disable**
- **[no] ignore-dn-bit**
- **import** *policy-name* [*policy-name...*(up to 5 max)]
- **no import**
- **[no] ignore-dn-bit**
- **[no] loopfree-alternate**
- **[no] multicast-import**
- **overload** [**timeout** *seconds*]
- **no overload**
- **[no] overload-include-stub**
- **overload-on-boot** [**timeout** *seconds*]
- **no overload-on-boot**
- **preference** *preference*
- **no preference**
- **reference-bandwidth** *bandwidth-in-kbps*
- **no reference-bandwidth**
- **router-id** *ip-address*
- **no router-id**
- **[no] shutdown**
- **[no] super-backbone**
- **[no] suppress-dn-bit**
- **timers**
  - **[no] lsa-arrival** *lsa-arrival-time*
  - **[no] lsa-generate** *max-lsa-wait* [*lsa-initial-wait* [*lsa-second-wait*]]
  - **[no] spf-wait** *max-spf-wait* [*spf-initial-wait* [*spf-second-wait*]]
- **[no] unicast-import-disable**
- **vpn-domain** *id* {**0005** | **0105** | **0205** | **8005**}
- **no vpn-domain**
- **vpn-tag** *vpn-tag*
- **no vpn-tag**

## PIM Configuration Commands

```

config
  — service
    — vprn
      — [no] pim
        — apply-to {all | none}
        — import {join-policy | register-policy} [policy-name [.. policy-name]]
        — no import {join-policy | register-policy}
        — [no] interface ip-int-name
          — assert-period assert-period
          — no assert-period
          — [no] bfd-enable [ipv4|ipv6]
          — [no] bsm-check-rtr-alert
          — hello-interval hello-interval
          — no hello-interval
          — hello-multiplier deci-units
          — no hello-multiplier
          — [no] improved-assert
          — [no] instant-prune-echo
          — [no] ipv4-multicast-disable
          — [no] ipv6-multicast-disable
          — max-groups value
          — no max-groups
          — mcaac
            — mc-constraints
              — level level-id bw bandwidth
              — no level
              — number-down number-lag-port-down
              — no number-down
              — [no] shutdown
            — policy policy-name
            — no policy
            — unconstrained-bw bandwidth mandatory-bw mandatory-bw
            — no unconstrained-bw
          — multicast-senders {auto | always | never}
          — no multicast-senders
          — priority dr-priority
          — no priority
          — [no] shutdown
          — sticky-dr [priority dr-priority]
          — no sticky-dr
          — three-way-hello [compatibility-mode]
          — no three-way-hello
          — [no] tracking-support
        — [no] ipv4-multicast-disable
        — [no] ipv6-multicast-disable
        — [no] mc-ecmp-balance
        — [no] mc-ecmp-balance-hold
        — [no] mc-ecmp-hashing-enabled
        — [no] non-dr-attract-traffic
        — rp
          — auto-rp-discovery
          — [no] anycast rp-ip-address

```

- [no] **rp-set-peer** *ip-address*
- [no] **auto-rp-discovery**
- **bootstrap-export** *policy-name* [*.. policy-name...up to five*]
- **no bootstrap-export**
- **bootstrap-import** *policy-name* [*.. policy-name...up to five*]
- **no bootstrap-import**
- **bsr-candidate**
  - **address** *ip-address*
  - **no address**
  - **hash-mask-len** *hash-mask-length*
  - **no hash-mask-len**
  - **priority** *bootstrap-priority*
  - **no priority**
  - [no] **shutdown**
- **ipv6**
  - **anycast** *ipv6-address*
    - [no] **rp-set-peer** *ipv6-address*
  - **bsr-candidate** *ipv6-address*
    - **address** *ipv6-address*
    - [no] **address**
    - **hash-mask-length** *hash-mask-length*
    - [no] **hash-mask-length**
    - **priority** *bootstrap-priority*
    - **no priority**
    - [no] **shutdown**
  - [no] **embedded-rp**
    - **group-range** *grp-ipv6-address/prefix-length*
    - [no] **shutdown**
  - **rp-candidate**
    - **address** *ipv6-address*
    - **no address**
    - [no] **group-range** *grp-ipv6-address/prefix-length*
    - **holdtime** *holdtime*
    - **no holdtime**
    - **priority** *priority*
    - **no priority**
    - [no] **shutdown**
  - **static**
    - [no] **address** *ipv6-address*
      - [no] **group-prefix** *grp-ipv6-address/prefix-length*
      - [no] **override**
- **rp-candidate**
  - **address** *ip-address*
  - **no address**
  - [no] **group-range** {*grp-ip-address/mask* | *grp-ip-address* [*netmask*]}
  - **holdtime** *holdtime*
  - **no holdtime**
  - **priority** *priority*
  - **no priority**
  - [no] **shutdown**
- **static**
  - [no] **address** *ip-address*

- [no] **group-prefix** {*grp-ip-address/mask* | *grp-ip-address netmask*}
- [no] **override**
- [no] **rpf-table** {*rtable-m* | *rtable-u* | **both**}
- [no] **shutdown**
- **spt-switchover-threshold** {*grp-ip-address/mask* | *grp-ip-address net-mask*} *spt-threshold*
- **no spt-switchover-threshold** {*grp-ip-address/mask* | *grp-ip-address net-mask*}
- **ssm-assert-compatible-mode** [**enable**|**disable**]
- **ssm-default-range-disable** **ipv4**
- [no] **ssm-groups**
  - [no] **group-range** {*grp-ip-address/mask* | *grp-ip-address net-mask*}

## C-Multicast Listener Discovery (MLD) Commands

- ```

config
  — service
    — [no] vprn
      — [no] mld
        — [no] interface ip-int-name
          — [no] disable-router-alert-check
          — import policy-name
          — no import
          — max-groups value
          — no max-groups
          — query-interval seconds
          — no query-interval
          — query-last-member-interval seconds
          — no query-last-member-interval
          — query-response-interval seconds
          — no query-response-interval
          — [no] shutdown
          — static
            — [no] group grp-ipv6-address
            — [no] source src-ipv6-address
            — [no] starg
          — version version
          — no version
        — query-interval seconds
        — no query-interval
        — query-last-member-interval seconds
        — no query-last-member-interval
        — query-response-interval seconds
        — no query-response-interval
        — robust-count robust-count
        — no robust-count
        — [no] shutdown
        — ssm-translate
          — [no] grp-range start end
          — [no] source src-ipv6-address

```



## RIP Configuration Commands

```

config
  — service
    — vprn
      — [no] rip
        — authentication-key [authentication-key | hash-key] [hash | hash2]
        — no authentication-key
        — authentication-type {none | password | message-digest}
        — no authentication-type
        — check-zero {enable | disable}
        — no check-zero
        — description description-string
        — no description
        — export policy-name [policy-name...(upto 5 max)]
        — no export
        — export
        — export-limit number [log percentage]
        — no export-limit
        — [no] group name
          — authentication-key [authentication-key | hash-key] [hash | hash2]
          — no authentication-key
          — authentication-type {none | password | message-digest}
          — no authentication-type
          — check-zero {enable | disable}
          — no check-zero
          — description description-string
          — no description
          — export policy-name [policy-name...(upto 5 max)]
          — no export
          — import policy-name [policy-name...(upto 5 max)]
          — no import
          — message-size max-num-of-routes
          — no message-size
          — metric-in metric
          — no metric-in
          — metric-out metric
          — no metric-out
          — preference preference
          — no preference
          — receive receive-type
          — no receive
          — send send-type
          — no send
          — [no] shutdown
          — split-horizon {enable | disable}
          — no split-horizon
          — timers update timeout flush
          — no timers
          — [no] neighbor ip-int-name
            — authentication-key authentication-key | hash-key
              [hash | hash2]
            — no authentication-key

```



- **authentication-type** {none | password | message-digest}
- **no authentication-type**
- **check-zero** {enable | disable}
- **no check-zero**
- **description** *description-string*
- **no description**
- **export** *policy-name* [*policy-name...*(upto 5 max)]
- **no export**
- **import** *policy-name* [*policy-name...*(upto 5 max)]
- **no import**
- **message-size** *max-num-of-routes*
- **no message-size**
- **metric-in** *metric*
- **no metric-in**
- **metric-out** *metric*
- **no metric-out**
- **preference** *preference*
- **no preference**
- **receive** *receive-type*
- **no receive**
- **send** *send-type*
- **no send**
- **[no] shutdown**
- **split-horizon** {enable | disable}
- **no split-horizon**
- **no timers**
- **timers** *update timeout flush*
- **import** *policy-name* [*policy-name...*(upto 5 max)]
- **no import**
- **message-size** *max-num-of-routes*
- **no message-size**
- **metric-in** *metric*
- **no metric-in**
- **metric-out** *metric*
- **no metric-out**
- **preference** *preference*
- **no preference**
- **[no] propagate-metric**
- **receive** *receive-type*
- **no receive**
- **send** *send-type*
- **no send**
- **[no] shutdown**
- **split-horizon** {enable | disable}
- **no split-horizon**
- **timers** *update timeout flush*
- **no timers**

## Threat Management Service Interface Commands

```
config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — tms-interface interface-name [create] [off-ramp-vprn off-ramp-svc] [mgmt-vprn
        mgmt-svc]
      — no tms-interface interface-name
        — address {ip-address/mask|ip-address netmask}
        — no address
        — description long-description-string
        — no description
        — [no] ipv6
        — password [password]
        — no password
        — port mda-id
        — no port
        — [no] tms-egress-filter filter-name
        — [no] shutdown
```

## RADIUS Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — radius-proxy
        — server server-name [create] [purpose {[accounting][authentication]}]
        — no server server-name
          — cache
            — key packet-type {accept|request} attribute-type
              attribute-type [vendor-id vendor-id]
            — no key
            — [no] shutdown
            — timeout [hrs hours] [min minutes] [sec seconds]
            — no timeout
            — track-accounting [start] [stop] [interim-update]
            — no track-accounting
          — default-accounting-server-policy policy-name
          — no default-accounting-server-policy
          — default-authentication-server-policy policy-name
          — no default-authentication-server-policy
          — description description-string
          — no description
          — [no] interface ip-int-name
          — load-balance-key vendor vendor-id [vendor-id...(up to 5 max)]
            attribute-type attribute-type [attribute-type...(up to 5 max)]
          — load-balance-key source-ip-udp
          — no load-balance-key
          — secret secret [hash|hash2]
          — no secret
          — [no] send-accounting-response
          — [no] shutdown
          — username [1..32] prefix-string [128 chars max] [accounting-
            server-policy policy-name] [authentication-server-policy pol-
            icy-name]
          — no username [1..32]
        — radius-server
          — server server-name [address ip-address] [secret key] [hash|hash2] [port
            port] [create]
          — no server server-name
            — [no] accept-coa
            — coa-script-policy script-policy-name
            — no coa-script-policy
            — description description-string
            — no description
            — pending-requests-limit limit
            — no pending-requests-limit

```

## Web Portal Protocol Configuration Commands

```
config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — [no] wpp
        — portals
          — portal
            — [no] shutdown
          — [no] shutdown
```

## Show Commands

```

show
  — service
    — egress-label start-label [end-label]
    — ingress-label start-label [end-label]
    — id service-id
      — all
      — authentication
        — statistics [policy name] [sap sap-id]
      — arp [ip-address] | [mac ieee-address] | [sap port-id:encap] | [interface ip-int-name]
      — arp-host [wholesaler service-id] [sap sap-id | interface interface-name | ip-address ip-address[/mask]] | mac ieee-address | {[port port-id] [no-inter-dest-id | inter-dest-id inter-dest-id]}] [detail]
      — arp-host statistics [sap sap-id | interface interface-name]
      — arp-host summary [interface interface-name]
      — base
      — dhcp
        — lease-state [[sap sap-id] [sdp [sdp-id[:vc-id]]] | [interface interface-name] | [ip-address ip-address[/mask]] | [mac ieee-address] | [wholesaler service-id] | [wholesaler service-id]]] [detail]
        — statistics [sap sap-id]
        — statistics [sdp sdp-id:vc-id]
        — statistics [interface interface-name]
        — summary
      — gsmf
        — neighbors group [name] [ip-address]
        — sessions [group name] neighbor ip-address] [port port-number] [association] [statistics]
      — host [sap sap-id] [detail]
      — sessions summary
      — sessions [detail] wholesaler service-id
      — interface [ip-address | ip-int-name] [detail]
      — retailers
      — sap [sap-id] [detail]
      — sdp [sdp-id | far-end ip-address] [detail]
      — subscriber-hosts [sap sap-id] [ip ip-address[/mask]] [mac ieee-address] [sub-profile sub-profile-name] [sla-profile sla-profile-name] [detail]
      — subscriber-hosts [detail] wholesaler service-id
      — wholesalers
    — sap-using [sap sap-id]
    — sap-using interface [ip-address | ip-int-name]
    — sap-using [ingress | egress] atm-td-profile td-profile-id
    — sap-using [ingress | egress] filter filter-id
    — sap-using [ingress | egress] qos-policy qos-policy-id
    — sap-using authentication-policy policy-name
    — sdp-using [sdp-id | far-end ip-address] [detail | keep-alive-history]
    — sdp-using [sdp-id[:vc-id]]
    — service-using [vprn] [sdp sdp-id] [customer customer-id]

```

```

show
  — router [vprn-service-id]
    — aggregate [active]
    — arp [ip-address | ip-int-name | mac ieee-mac-address] [sdp sdp-id:vc-id] [summary]
    — bgp
      — damping [ip-prefix/mask | ip-address] [detail]
      — damping [damp-type] [detail]
      — group [name] [detail]
      — neighbor [ip-address [[family family] filter1]]
      — neighbor [as-number [[family family] filter2]]
      — paths
      — routes [family family] [prefix [detail | longer]]
      — routes [family family] [prefix [hunt | brief]]
      — routes [family family] [community comm-id]
      — routes [family family] [aspath-regex reg-ex1]
      — routes [family] [ipv6-prefix[/prefix-length]] [detail | longer][[hunt [brief]]]
      — summary [all]
    — dhcp
      — statistics [ip-int-name | ip-address]
      — summary
    — ecmp
    — interface [{ip-address | ip-int-name] [detail]} | summary | exclude-services
    — mvpn
    — rip
      — database [ip-address[/mask]] [longer] [peer ip-address] [detail]
      — neighbor [ip-int-name | ip-address] [detail] [advertised-routes]
      — peer [interface-name]
      — statistics [ip-int-name | ip-address]
    — route-table [ip-address[/mask]] [longer | best] | [protocol protocol] | [summary]
    — service-prefix
    — static-arp [ip-address | ip-int-name | mac ieee-mac-address]
    — static-route [ip-prefix /mask] | [preference preference] | [next-hop ip-address] [detail]
    — tunnel-table [ip-address[/mask]] [protocol protocol | sdp sdp-id]
    — tunnel-table [summary]
    — wpp
    — wpp [portal wpp-portal-name] [host ip-address] hosts
    — wpp portal wpp-portal-name
    — wpp statistics

```

## Clear Commands

```

clear
  — router
    — arp-host
    — arp-host { mac ieee-address | sap sap-id | ip-address ip-address[/mask] }
    — arp-host [port port-id] [inter-dest-id intermediate-destination-id | no-inter-dest-id]
    — arp-host statistics [sap sap-id | interface interface-name]
    — statistics interface [ip-int-name | ip-address]
    — bgp
      — damping [{prefix/mask [neighbor ip-address]} | {group name}]
      — flap-statistics [[ip-prefix/mask] [neighbor ip-address]] | [group group-name] |
        [regex reg-exp] | [policy policy-name]
      — neighbor {ip-address | as as-number | external | all} [soft | soft-inbound | statis-
        tics]
      — protocol
    — dhcp
      — statistics [interface ip-int-name | ip-address]
    — forwarding-table [slot-number]
    — interface [ip-int-name | ip-address] [icmp]
    — rip
      — database
      — statistics [neighbor ip-int-name | ip-address]

clear
  — service
    — id service-id
      — dhcp
        — lease-state
        — lease-state ip-address ip-address
        — lease-state mac ieee-address
        — lease-state sap sap-id
        — lease-state sdp sdp-id:vc-id
        — spoke-sdp sdp-id:vc-id ingress-vc-label
    — statistics
      — sap sap-id {all | counters | stp}
      — sdp sdp-id keep-alive
      — id service-id
        — counters
        — spoke-sdp sdp-id:vc-id {all | counters | stp}
        — spoke-sdp

```

## Debug Commands

```

debug
  — service
    — id service-id
      — [no] arp-host
      — [no] dhcp
        — detail-level {low | medium | high}
        — no detail-level
        — mode {dropped-only | ingr-and-dropped | egr-ingr-and-dropped}
        — no mode
        — [no] sap sap-id
        — [no] sdp sdp-id.vc-id
      — [no] event-type {config-change | svc-oper-status-change | sap-oper-status-change | sdpbind-oper-status-change}
      — [no] host-connectivity-verify
        — [no] ip ip-address
        — [no] mac ieee-address
        — [no] sap sap-id
      — [no] sap sap-id
        — event-type {config-change | oper-status-change}
      — [no] sdp sdp-id.vc-id
        — event-type {config-change | oper-status-change}
      — stp
        — [no] all-events
        — [no] bpdu
        — [no] core-connectivity
        — [no] exception
        — [no] fsm-state-changes
        — [no] fsm-timers
        — [no] port-role
        — [no] port-state
        — [no] sap sap-id
        — [no] sdp sdp-id.vc-id

debug
  — router [router-instance]
    — igmp
      — [no] interface [ip-int-name | ip-address]
      — [no] mcs [ip-int-name]
      — [no] misc
      — [no] packet [query|v1-report|v2-report|v3-report|v2-leave] [ip-int-name|ip-address]

```