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## VPRN Services Command Reference

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## 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] [black-hole] [community comm-id] [description description]
      — aggregate ip-prefix/ip-prefix-length [summary-only] [as-set] [aggregator as-number:ip-address] [community comm-id] [indirect ip-address] [description description]
      — no aggregate ip-prefix/ip-prefix-length
      — allow-export-bgp-vprn
      — no allow-export-bgp-vprn
      — auto-bind-tunnel
        — resolution {any | filter | disabled }
        — [no] resolution-filter gre
        — [no] resolution-filter ldp
        — [no] resolution-filter rsvp
        — [no] resolution-filter sr-isis
        — [no] resolution-filter sr-ospf
      — 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
— network
— ingress
— filter {ip ip-filter-id | ipv6 ipv6-filter-id}
— no filter [ip ip-filter-id] [ipv6 ipv6-filter-id]
— [no] ptp
— peer a.b.c.d [create]
— no peer a.b.c.d
— [no] log-sync-interval log-interval
— local-priority local-priority
— [no] shutdown
— peer-limit limit
— no peer-limit
— [no] shutdown
— reassembly-group nat-group-id
— route-distinguisher [ip-address:number1 | asn:number2 | auto-rd]
— 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
— snmp
— [no] access
— community community-name [hash | hash2] [access-permissions] [version
SNMP-version] [src-access-list list-name]
— no community community-name [hash|hash2]

```

- **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**
    - **[no] acknowledgment**
    - **refresh-timer** *value*
    - **no refresh-timer**
    - **request-timer** *timer1* **retry-timer** *timer2* [**timeout-multiplier** *multiplier*]
    - **no request-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*] [**padding-size** *padding-size*] [**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*] [**padding-size** *padding-size*][**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**]
- **ttl-propagate**
  - **local** [**inherit**|**none**|**vc-only**|**all**]
  - **transit** [**inherit**|**none**|**vc-only**|**all**]
- **type** {**hub** | **spoke** | **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}
        — noavp-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
          — mcaac
            — mc-constraints
              — [no] shutdown
              — policy policy-name
              — no policy
              — unconstrained-bw bandwidth mandatory-bw mandatory-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
          — mcaac
            — mc-constraints
              — level level-id bw bandwidth
              — no level level-id
              — number-down number-lag-port-down level level-id
              — no number-down number-lag-port-down
              — [no] shutdown
              — [no] use-lag-port-weight
            — 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
        {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
            — cert-profile name
            — no cert-profile
            — 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

```



## Log Commands

Refer to the System Management Guide for information about configuring event and accounting logs.

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — log
        — [no] filter filter-id
          — default-action {drop | forward}
          — no default-action
          — description description-string
          — no description
          — [no] entry entry-id
            — action {drop | forward}
            — no action
            — description description-string
            — no description
            — [no] match
              — application {eq | neq} application-id
              — no application
              — message {eq | neq} pattern pattern [regex]
              — no message
              — number {eq | neq | lt | lte | gt | gte} event-id
              — no number
              — severity {eq | neq | lt | lte | gt | gte} severity-level
              — no severity
              — subject {eq | neq} subject [regex]
              — no subject
            — [no] log-id log-id
              — description description-string
              — no description
              — filter filter-id
              — no filter
              — from {[main] [change] }
              — no from
              — [no] shutdown
              — time-format {local | utc}
              — to snmp [size]
              — to syslog syslog-id
            — [no] snmp-trap-group log-id
              — description description-string
              — no description
              — trap-target name [address ip-address] [port port] [snmpv1 |
                snmpv2c | snmpv3] notify-community communityName |
                snmpv3SecurityName [security-level {no-auth-no-privacy |
                auth-no-privacy | privacy}] [replay]
              — no trap-target name
            — [no] syslog syslog-id
              — address ip-address
              — no address

```

- **description** *description-string*
- **no description**
- **facility** *syslog-facility*
- **no facility**
- **level** {*emergency* | *alert* | *critical* | *error* | *warning* | *notice* | *info* | *debug*}
- **no level**
- **log-prefix** *log-prefix-string*
- **no log-prefix**
- **port** *port*
- **no port**

## Multicast VPN Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — mvpn
        — [no] auto-discovery [default | mdt-safi] [source-address ip-address]
        — c-mcast-signaling {bgp | pim}
        — no c-mcast-signaling
        — intersite-shared [persistend-type5-adv][kat-type5-adv-withdraw]
        — no intersite-shared
        — red-source-list
          — src-prefix ip-address/mask [ip-address/mask> ...up to 8 maximum]
          — no src-prefix ip-address/mask
          — ipv6
            — src-prefix ipv6-ip-address/prefix-length [ipv6-ip-address/prefix-length > ...up to 8 maximum]
            — no src-prefix ipv6-ip-address/prefix-length
        — rpf-select
          — [no] core-mvpn service-id
            — group-prefix ip-address/mask [ip-address/mask...(upto 8 max)] [starg]
            — no group-prefix ip-address/mask
        — provider-tunnel
          — inclusive
            — bsr {unicast | spmsi}
            — no bsr
            — 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
            — [no] wildcard-spmsi
          — 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* [**pe-threshold-add** *pe-threshold-add*] [**pe-threshold-delete** *pe-threshold-delete*]
- **data-threshold** *c-grp-ipv6-addr/prefix-length* *s-pmsi-threshold* [**pe-threshold-add** *pe-threshold-add*] [**pe-threshold-delete** *pe-threshold-delete*]
- **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-flv-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 netmask*}
- **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
  — service
    — vprn
      — [no] router-advertisement
        — [no] dns-options
          — dns-servers ipv6-address
          — no dns-servers
          — rdnss-lifetime {seconds | infinite}
          — no rdnss-lifetime
        — [no] interface ip-int-name
          — current-hop-limit number
          — no current-hop-limit
          — [no] dns-options
            — dns-servers ipv6-address
            — no dns-servers
            — rdnss-lifetime seconds
            — no rdnss-lifetime
            — [no] include-dns
          — [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 **vprn ntp** 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 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
              — follow router router-instance pool name
              — no follow
              — 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-inter-
      face 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**] **vprn**
- [**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**] **bfd-enable**
  - **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**
  - [**no**] **collect-lmm-stats**
    - **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** | **mac-RemErrXcon** | **remErrXcon** | **errXcon** | **xcon** | **noXcon**}
  - **one-way-delay-threshold** *seconds*
  - [**no**] **shutdown**
  - **squelch-ingress-levels** [**md-level** [*md-level...*]]
  - **no squelch-ingress-levels**
  - **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] shutdown
— 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] **shutdown**
- [no] **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** *rrp-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 | ip-address netmask} [broadcast all-ones |
          host-ones] [track-srrp srrp-instance]
        — no address [ip-address/mask | ip-address netmask]
        — [no] allow-directed-broadcasts
        — arp-limit limit [log-only] [threshold percent]
        — no arp-limit
        — [no] arp-populate
        — arp-retry-timer timer-multiple
        — no arp-retry-timer
        — 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-parameters
        — no cflowd-parameters
          — sampling {unicast | multicast} type {acl | interface} [direction {ingress-only | egress-only|both}]
          — no sampling {unicast | multicast}
        — cpu-protection policy-id
        — no cpu-protection
        — delayed-enable seconds
        — no delayed-enable
        — description description-string
        — no description
        — 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**
- **python-policy** *policy-name*
- **no python-policy**
- **sap** *sap-id*
- **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*]
- **if-attribute**
  - **[no] admin-group** *group-name* [*group-name...*(up to 5 max)]
  - **srlg-group** *group-name* [*group-name...*(up to 5 max)]
  - **no srlg-group**
- **ingress**
  - **policy-accounting** *<template-name>*
  - **no policy-accounting**
- **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] dad-disable**
- **[no] dhcp6-relay**
  - **lease-populate** *[nbr-of-leases]*
  - **no lease-populate**
  - **[no] neighbor-resolution**
- **[no] dhcp6-server**
- **icmp6**
- **link-local-address** *ipv6-address* [**preferred**]
- **no link-local-address**
- **[no] local-proxy-nd**
- **neighbor** *ipv6-address mac-address*
- **no neighbor** *ipv6-address*
- **neighbor-limit** *limit* [**log-only**] [**threshold percent**]
- **no neighbor-limit**
- **proxy-nd-policy** *policy-name* [*policy-name...(up to 5 max)*]
- **no proxy-nd-policy**
- **python-policy** *policy-name*
- **no python-policy**
- **[no] qos-route-lookup**
- **stale-time** *seconds*
- **no stale-time**
- **[no] secure-nd**
  - **[no] allow-unsecured-msgs**
  - **link-local-modifier** *modifier*
  - **no link-local-modifier**
  - **public-key-min-bits** *bits*
  - **no public-key-min-bits**
  - **security-parameter** *sec*
  - **no security-parameter**
  - **[no] shutdown**
- **tcp-mss** *mss-value*
- **[no] tcp-mss**
- **[no] urpf-check**
  - **mode** {**strict** | **loose** | **strict-no-ecmp**}
  - **no mode**
- **load-balancing**
  - **egr-ip-load-balancing** {**source** | **destination** | **inner-ip**}
  - **no egr-ip-load-balancing**
  - **[no] spi-load-balancing**
  - **[no] teid-load-balancing**
- **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**
- **[no] ptp-hw-assist**
- **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**
- **tcp-mss** *mss-value*
- [no] **tcp-mss**
- **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**
- **vas-if-type** {**to-from-access** | **to-from-network** | **to-from-both**}
- **no vas-if-type**
- **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-retry-timer timer-multiple
        — no arp-retry-timer
        — arp-timeout [seconds]
        — no arp-timeout
        — bfd transmit-interval [receive receive-interval] [multiplier multiplier][echo-receive echo-interval] [type cpm-np]
        — no bfd
        — cflowd-parameters
        — no cflowd-parameters
          — sampling {unicast | multicast} type {acl | interface} [direction {ingress-only | egress-only|both}]
          — no sampling {unicast | multicast}
        — 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
        — 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
        — ip-mtu octets
        — no ip-mtu
        — lag lag-id[:encap-val]
        — no lag

```

- [no] **loopback**
- **no load-balancing**
  - **egr-ip-load-balancing** {source | destination | inner-ip}
  - **no egr-ip-load-balancing**
  - **lsr-load-balancing** *hashing-algorithm*
  - **no lsr-load-balancing**
  - [no] **spi-load-balancing**
  - [no] **teid-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|ipipe} [create]
      — no spoke-sdp sdp-id [:vc-id] vc-type {ether|ipipe} [create]
        — arp arpId type type
        — no arp
        — accounting-policy acct-policy-id
        — no accounting-policy
        — app-profile app-profile-name
        — no app-profile
        — bfd-template name
        — no bfd-template
        — [no] bfd-enable
        — [no] control-channel-status
          — [no] acknowledgment
          — refresh-timer value
          — no refresh-timer
          — request-timer timer1 retry-timer timer2 [timeout-
multiplier multiplier]
          — no request-timer
        — [no] control-word
      — 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
        — [no] collect-lmm-stats
        — 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] interface-support-enable
          — [no] ccm-enable
          — ccm-ltm-priority priority
          — no ccm-ltm-priority
          — ccm-padding-size ccm-padding
          — no ccm-padding-size ccm-padding
        — [no] csf-enable
          — multiplier multiplier-value
          — no multiplier
        — description description-string
        — 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] **snmp** {enable | disable} [*md-level* [*md-level*...]]
- [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**
- [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**



## 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 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
          — vrrp virtual-router-id [owner]
          — no vrrp virtual-router-id
            — authentication-key {authentication-key | hash-key} [hash | hash2]
            — no authentication-key
            — [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] bfd-enable
          — cpu-protection policy-id [mac-monitoring][eth-cfm-monitoring [aggregate] [car]]
          — no cpu-protection
          — description description-string
          — no description [description-string]
          — dist-cpu-protection policy-name
          — no dist-cpu-protection
          — egress
            — [no] agg-rate
            — [no] limit-unused-bandwidth
            — [no] queue-frame-based-accounting
            — rate {max | rate}
            — no 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**
  - **[no] monitor-depth**
  - **rate** *pir-rate*
  - **no rate**
  - **slope-policy** *hsmda-slope-policy-name*  
*allowable*
  - **no slope-policy**
- **source** *ip-address*
- **remote-ip** *ip-address*
- **backup-remote-ip** *ip-address*
- **[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*
    - **parent** [**weight** *weight*] [**cir-weight** *cir-weight*]
    - **no parent**
    - **rate** *pir-rate* [**cir** *cir-rate*]
    - **no rate**
- **scheduler-policy** *scheduler-policy-name*
- **no scheduler-policy**
- **eth-cfm**
  - **[no] collect-lmm-stats**
  - **mep** *mep-id* **domain** *md-index* **association** *ma-index*  
[**direction** {up | down}]
  - **no mep** *mep-id* **domain** *md-index* **association** *ma-index*  
*index*
    - **[no] ais-enable**
      - **[no] interface-support-enable**
    - **[no] ccm-enable**
    - **ccm-ltm-priority** *priority*
    - **no ccm-ltm-priority**
    - **[no] ccm-padding-size** *ccm-padding*
    - **[no] csf-enable**

- **multiplier** *multiplier-value*
- **no multiplier**
- **description** *description-string*
- **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*
- **snelch-ingress-levels** [*md-level* [*md-level...*]]
- **no snelch-ingress-levels**
- **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-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**
    - **monitor-depth**
    - **[no] monitor-depth**
    - **rate** *pir-rate* [**cir** *cir-rate*]

- **no rate**
- **[no] scheduler-override**
- **[no] scheduler** *scheduler-name*
  - **parent** [**weight** *weight*] [**cir-weight** *cir-weight*]
  - **no parent**
  - **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 the *Layer 2 Services Guide*.

```

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

```

## | Oper Group Commands

```
config
  — service
    — vprn service-id
      — site name [create]
        — monitor-oper-group name
        — no monitor-oper-group name
```

## Network Ingress Commands

```
config
  — service
    — vprn [inter-as-mvpn] [customer customer-id] [create]
    — no vprn service-id
      — network
        — ingress
          — qos network-policy-id fp-redirect-group queue-group-name
            instance instance-id
          — no 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
        — [no] 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-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-withdrawal**
- **remove-private** [**limited**] [**skip-peer-as**]
- **no remove-private**
- **rib-management**
  - **ipv4**
    - **leak-import** *policy-name* [*policy-name .. (up to 15 max)*]
    - **no leak-import**
  - **ipv6**
    - **leak-import** *policy-name* [*policy-name .. (up to 15 max)*]
    - **no leak-import**
- **router-id** *ip-address*
- **no router-id**
- [no] **third-party-nexthop**
- [no] **shutdown**
- [no] **split-horizon**
- [no] **group** *name* [**esm-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 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**
- **ebgp-link-bandwidth** [**ipv4**] [**ipv6**]
- **[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-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** *family limit* [**log-only**] [**threshold percentage**] [**idle-timeout** { minutes | **forever**}] [**post-import**]
- **no prefix-limit** *family*
- [**no**] **remove-private**
- [**no**] **shutdown**
- [**no**] **third-party-nexthop**
- **ttl-security** *min-ttl-value*
- **no ttl-security**
- **third-party-nexthop** {**internal** | **external**}
- **no third-party-nexthop**
- [**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**
  - **ebgp-link-bandwidth** [**ipv4**] [**ipv6**]
  - [**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-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** *family limit* [log-only] [threshold *percentage*] [idle-timeout {minutes | forever}] [post-import]
- **no prefix-limit** *family*
- [no] **remove-private**
- [no] **shutdown**
- [no] **third-party-nexthop**
- **ttl-security** *min-ttl-value*
- **no ttl-security**
- **third-party-nexthop** {internal | external}
- **no third-party-nexthop**
- [no] **updated-error-handling**

## ISIS Configuration Commands

```

config
  — service
    — vprn service-id [customer customer-id]
    — no vprn service-id
      — [no] isis [isis-instance]
        — [no] advertise-passive-only
        — [no] advertise-router-capability {area | as}
        — all-l1isis ieee-address
        — no all-l1isis
        — all-l2isis ieee-address
        — no all-l2isis
        — [no] area-id area-address
        — auth-keychain name
        — [no] authentication-check
        — authentication-key [authentication-key | hash-key] [hash | hash2]
        — no authentication-key
        — authentication-type {password | message-digest}
        — no authentication-type
        — [no] csnp-authentication
        — [no] default-route-tag tag
        — export policy-name [policy-name...(upto 5 max)]
        — no export
        — export-limit number [log percentage]
        — no export-limit
        — [no] graceful-restart
          — [no] helper-disable
        — [no] hello-authentication
        — hello-padding {adaptive|loose|strict}
        — no hello-padding
        — ignore-attached-bit
        — no ignore-attached-bit
        — [no] ignore-lsp-errors
        — [no] iid-tlv-enable
        — [no] interface ip-int-name
          — bfd-enable {ipv4 | ipv6} [include-bfd-tlv]
          — no bfd-enable
          — csnp-interval seconds
          — no csnp-interval
          — hello-auth-keychain name
          — no hello-auth-keychain
          — [no] hello-authentication
          — hello-authentication-key authentication-key|hash-key
            [hash|hash2]
          — no hello-authentication-key
          — hello-authentication-type {password|message-digest}
          — no hello-authentication-type
          — interface-type {broadcast|point-to-point}
          — no interface-type
          — [no] ipv4-multicast-disable
          — [no] ipv6-unicast-disable
          — level
            — hello-auth-keychain name
            — no hello-auth-keychain

```

- **hello-authentication-key** *authentication-key|hash-key* [**hash**|**hash2**]
- **no hello-authentication-key**
- **hello-authentication-type** {**password**|**message-digest**}
- **no hello-authentication-type**
- **hello-interval** *seconds*
- **no hello-interval**
- **hello-multiplier** *multiplier*
- **no hello-multiplier**
- **ipv6-unicast-metric** *ipv6-metric*
- **no ipv6-unicast-metric**
- **ipv4-multicast-metric** *IPv4 multicast metric*
- **no ipv4-multicast-metric**
- **metric** *ipv4-metric*
- **no metric**
- [**no**] **passive**
- **priority** *number*
- **no priority**
- **sd-offset** *sd-offset*
- **no sd-offset**
- **sf-offset** *sf-offset*
- **no sf-offset**
- **level-capability** {**level-1**|**level-2**|**level-1/2**}
- **no level-capability**
- **lfa-policy-map route-nh-template** *template-name*
- **no lfa-policy-map**
- [**no**] **loopfree-alternate-exclude**
- **lsp-pacing-interval** *milli-seconds*
- **no lsp-pacing-interval**
- **mesh-group** [*value* | **blocked**]
- **no mesh-group**
- [**no**] **passive**
- **retransmit-interval** *seconds*
- **no retransmit-interval**
- [**no**] **shutdown**
- **tag** *tag*
- **no tag**
- [**no**] **ipv4-routing**
- [**no**] **ipv6-routing**
- **level** *level*
  - [**no**] **advertise-router-capability**
  - [**no**] **auth-keychain** *name*
  - **authentication-key** *authentication-key|hash-key* [**hash**|**hash2**]
  - **authentication-type** {**password**|**message-digest**}
  - **no authentication-type**
  - [**no**] **csnp-authentication**
  - **default-ipv4-multicast-metric** *ipv4 multicast metric*
  - **no default-ipv4-multicast-metric**
  - **default-ipv6-multicast-metric**
  - **no default-ipv6-multicast-metric**
  - **default-ipv6-unicast-metric** *ipv6 metric*
  - **no default-ipv6-unicast-metric**
  - **default-metric** *ipv4 metric*

- **no default-metric**
- **[no] external-preference** *external-preference*
- **[no] hello-authentication**
- **[no] loopfree-alternate-exclude**
- **preference** *preference*
- **no preference**
- **[no] wide-metrics-only**
- **level-capability** {*level-1*|*level-2*|*level-1/2*}
- **[no] link-group** *link-group name*
  - **description** [*256 chars max*]
  - **no description**
  - **level** {*1*|*2*}
    - **ipv4-multicast-metric-offset** *offset-value*
    - **no ipv4-multicast-metric-offset**
    - **ipv4-unicast-metric-offset** *offset-value*
    - **no ipv4-unicast-metric-offset**
    - **ipv6-unicast-metric-offset** *offset-value*
    - **no ipv6-unicast-metric-offset**
    - **[no] member** *interface-name*
    - **oper-members** [*1..8*]
    - **no oper-members**
    - **revert-members** [*1..8*]
    - **no revert-members**
- **[no] loopfree-alternate**
- **loopfree-alternate-exclude** **prefix-policy** *prefix-policy*
- **no loopfree-alternate-exclude**
- **lsp-lifetime** *seconds*
- **no lsp-lifetime**
- **lsp-mtu-size** *size*
- **no lsp-mtu-size**
- **lsp-refresh-interval** *seconds*
- **no lsp-refresh-interval**
- **lsp-wait** *lsp-wait* [*lsp-initial-wait* [*lsp-second-wait*]]
- **[no] multi-topology**
  - **[no] ipv4-multicast**
  - **[no] ipv6-unicast**
- **[no] multicast-import** [*ipv4*]
- **overload** [*timeout seconds*] [**max-metric**]
- **no overload**
- **overload-on-boot** [*timeout seconds*] [**max-metric**]
- **no overload-on-boot**
- **[no] poi-tlv-enable**
- **reference-bandwidth** *bandwidth-in-kbps*
- **reference-bandwidth** [**tbps** *Tera-bps*] [**gbps** *Giga-bps*] [**mbps** *Mega-bps*] [**kbps** *Kilo-bps*]
- **no reference-bandwidth**
- **rib-priority** {**high**} *prefix-list-name* | **tag** *tag-value*
- **no rib-priority**
- **[no] router-id** *router-id*
- **[no] rsvp-shortcut**
- **[no] shutdown**
- **[no] spf-wait** *spf-wait* [*spf-initial-wait* [*spf-second-wait*]]
- **[no] strict-adjacency-check**
- **summary-address** {*ip-prefix/mask* | *ip-prefix* [*netmask*]} *level* [**tag** *tag*]
- **no summary-address** {*ip-prefix/mask* | *ip-prefix* [*netmask*]}



- **suppress-attached-bit**
- **no suppress-attached-bit**
- **[no] unicast-import-disable**

## 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
        — advertise-router-capability { link | area | as }
        — no advertise-router-capability
        — [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
            — lfa-policy-map route-nh-template template-name
            — no lfa-policy-map
            — [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
            — rib-priority prefix-list-name
            — no rib-priority

```

- [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-rfc1583**
- **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**
- **loopfree-alternate-exclude** **prefix-policy** *prefix-policy* [*prefix-policy...* up to 5]
- **no loopfree-alternate-exclude**
- [no] **multicast-import**
- **overload** [**timeout** *seconds*]
- **no overload**
- [no] **overload-include-ext-2**
- [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**
- **rib-priority** *prefix-list-name*
- **no rib-priority**
- **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}
        — [no] grt-extranet
          — group-prefix ip-address/mask [ip-address/mask...(up to 8 max)]
            [starg]
          — group-prefix any
          — no group-prefix ip-address/mask
          — no group-prefix any
        — 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 level level-id
              — no number-down number-lag-port-down
              — [no] shutdown
              — [no] use-lag-port-weight
            — policy policy-name
            — no policy
            — unconstrained-bw bandwidth mandatory-bw mandatory-bw
            — no unconstrained-bw
          — multicast-senders {auto | always | never}
          — no multicast-senders
          — [no] p2mp-ldp-tree-join [ipv4] [ipv6]
          — 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
          — mcac
            — mc-constraints
              — level level-id bw bandwidth
              — no level
              — number-down number-lag-port-down level level-id
              — no number-down
              — [no] shutdown
              — [no] use-lag-port-weight
          — 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
      — [no] ripng
        — 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*
- **[no] unicast-address** *ipv6-address*
- **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] 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
          — python-policy name
          — no python-policy
          — 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
          — python-policy name
          — no python-policy

```

## | 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
      — gsm
        — neighbors group [name] [ip-address]
        — sessions [group name] neighbor ip-address] [port port-number] [associ-
          ation] [statistics]
      — host [sap sap-id] [detail]
      — sessions summary
      — sessions [detail] wholesaler service-id
      — interface [ip-address | ip-int-name] [detail]
      — ptp
      — 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-pro-
        file 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-tid-profile id-profile-id
    — sap-using [ingress | egress] filter filter-id
    — sap-using [ingress | egress] qos-policy qos-policy-id
    — sap-using authentication-policy policy-name
    — sap-using [sdp-id | far-end ip-address] [detail | keep-alive-history]
    — sap-using [sdp-id[:vc-id]
    — service-using [vprn] [sdp sdp-id] [customer customer-id]
    — sdp
      — sdp sdp-id pw-port [pw-port-id]
      — sdp sdp-id pw-port
      — sdp sdp-id pw-port [pw-port-id] [statistics]
      — sdp [consistent | inconsistent | na] egressifs

```

- **sdp** *sdp-id* **keep-alive-history**
- **sdp** **far-end** *ip-address* | *ipv6-address* **keep-alive-history**
- **sdp** [*sdp-id*] **detail**
- **sdp** **far-end** *ip-address* | *ipv6-address* **detail**
- **pw-port**
  - **pw-port** [*pw-port-id*] [**detail**]
  - **pw-port** **sdp** [*sdp-id*]
  - **pw-port** **sdp** **none**

**show**

- **service** *service-id*
  - **log**
    - **filter-id** [*filter-id*]
    - **log-id** [*log-id*] [**severity** *severity-level*] [**application** *application*] [**sequence** *from-seq* [*to-seq*]] [**count** *count*] [**subject** *subject* [**regexp**]] [**ascending|descending**]
    - **snmp-trap-group** [*log-id*]
    - **syslog** [*syslog-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
    — ldp
      — bindings active
    — 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]
    — 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]
    — statistics interface [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] 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]
  
```