

---

# IP Router Command Reference

---

## Command Hierarchies

### Configuration Commands

- [Router Commands on page 100](#)
- [Router BFD commands on page 102](#)
- [Router L2TP Commands on page 103](#)
- [Router Interface Commands on page 106](#)
- [Router Interface IPv6 Commands on page 109](#)
- [Router Advertisement Commands on page 110](#)
- [Show Commands on page 111](#)
- [Clear Commands on page 113](#)
- [Debug Commands on page 114](#)

Router Commands

```

config
  — router [router-name]
    — 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
    — autonomous-system autonomous-system
    — no autonomous-system
    — confederation confed-as-num members as-number [as-number...(up to 15 max)]
    — no confederation [confed-as-num members as-number...(up to 15 max)]
    — ecmp max-ecmp-routes
    — no ecmp
    — fib-priority {high | standard}
    — [no] icmp-tunneling
    — [no] ignore-icmp-redirect
    — [no] ip-fast-reroute
    — [no] ldp-shortcut
    — mc-maximum-routes number [log-only] [threshold threshold]
    — no mc-maximum-routes
    — mpls-labels
      —
      — static-label-range static-range
      — no static-label-range
      — sr-labels start-value end end-value
      — no sr-labels
    — multicast-info policy-name
    — no multicast-info
    — multicast-info
      — description description-string
      — no description
    — origin-validation
      — [no] rpki-session ip-address
        — [no] connect-retry seconds
        — [no] description string
        — [no] local-address ip-address
        — [no] port number
        — [no] refresh-time seconds hold-time seconds
        — [no] shutdown
        — [no] stale-time seconds
        — static-entry ip-prefix/prefix-length1-prefix-length2 origin-as as-number
          [valid | invalid]
        — no static-entry ip-prefix/prefix-length1-prefix-length2
      — router-id ip-address
      — no router-id
      — service-prefix {ip-prefix/mask | ip-prefix netmask} [exclusive]
      — no service-prefix ip-prefix/mask | ip-prefix netmask}
      — 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**] **static-route** {*ip-prefix/prefix-length* | *ip-prefix netmask*} [**preference** *preference*] [**metric** *metric*] [**tag** *tag*] [**enable**|**disable**] **next-hop** *ip-int-name*|*ip-address* [**validate-next-hop**] [*mcast-family*] [**community** *comm-id*][**bfd-enable**]{**cpe-check** *cpe-ip-address* [**interval** *seconds*] [**drop-count** *count*] [**padding-size** *padding-size*] [**log**] | {**prefix-list** *prefix-list-name* [**all**|**none**] | [**fc** *fc-name*] [**priority** {*low*|*high*}]} [**source-class** *source-index*][**dest-class** *dest-index*][**ldp-sync**][**description** *description*]
- [**no**] **static-route** {*ip-prefix/prefix-length* | *ip-prefix netmask*} [**preference** *preference*] [**metric** *metric*] [**tag** *tag*] [**community** *comm-id*] [**enable** | **disable**] [**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**]
- **static-route-entry** {*ip-prefix/prefix-length*} [**mcast**] **indirect** {*ip-address*}
  - [**no**] **tunnel-next-hop**
    - [**no**] **disallow-igp**
    - **resolution** {*any* | **disabled** | **filter**}
    - **resolution-filter** [**ldp**] [**rsvp-te** [*lsp lsp name*]...[*lsp lsp name*]]
- [**no**] **triggered-policy**
- **ttl-propagate**
  - **label-route-local** [**none** | **all**]
  - **label-route-transit** [**none** | **all**]
  - **lsr-label-route** [**none** | **all**]
  - **vprn-local** [**none** | **vc-only** | **all**]
  - **vprn-transit** [**none** | **vc-only** | **all**]
- **weighted-ecmp**

**config**

- **router** management
  - **origin-validation**
    - [**no**] **rpki-session** *ip-address*
      - [**no**] **connect-retry** *seconds*
      - [**no**] **description** *string*
      - [**no**] **local-address** *ip-address*
      - [**no**] **port** number
      - [**no**] **refresh-time** *seconds* **hold-time** *seconds*
      - [**no**] **shutdown**
      - [**no**] **stale-time** *seconds*

## Command Hierarchies

### Router BFD commands

```
config
  — router
    — bfd
    — bfd-template name [create]
    — bfd-template name
      — transmit-interval transmit-interval
      — no transmit-interval
      — receive-interval receive-interval
      — no receive-interval
      — cv-tx transmit-interval
      — no cv-tx
      — echo-receive echo-interval
      — no echo-receive
      — multiplier multiplier
      — no multiplier
      — [no] type cpm-np
```

## Router L2TP Commands

```

config
  — router [router-name]
    — l2tp
      — calling-number-format ascii-spec
      — no calling-number-format
      — challenge {always}
      — no challenge
      — df-bit-lac {always|never}
      — no df-bit-lac
      — 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
        — no avp-hiding
        — challenge always
        — no challenge
        — description description-string
        — no description
        — df-bit-lac {always|never|default}
        — no df-bit-lac
        — destruct-timeout destruct-timeout
        — no destruct-timeout
        — hello-interval hello-interval
        — no hello-interval
        — idle-timeout idle-timeout
        — no idle-timeout
        — lns-group lns-group-id
        — no lns-group
        — load-balance-method {per-session|per-tunnel}
        — no load-balance-method
        — 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
        — 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**
  - **df-bit-lac** {**always**|**never**|**default**}
  - **no df-bit-lac**
  - **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**
  - **load-balance-method** {**per-session**|**per-tunnel**}
  - **no load-balance-method**
  - **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**
  - **preference** *preference*
  - **no preference**
  - **remote-name** *host-name*
  - **no remote-name**
  - **session-limit** *session-limit*
  - **no session-limit**
  - [no] **shutdown**
- **next-attempt** {**same-preference-level** | **next-preference-level**}
- **no next-attempt**
- **replace-result-code** *code* [*code...*(upto 3 max)]
- **no replace-result-code**
- **peer-address-change-policy** {**accept** | **ignore** | **reject**}
- **receive-window-size** [*4..1024*]
- **no receive-window-size**

```
configure
  — [no] shutdown
  router
    — l2tp
      — tunnel-selection-blacklist
        — add-tunnel never
        — add-tunnel on reason>[reason...(upto 8 max)]
        — no add-tunnel
        — add-tunnel
        — max-list-length count
        — no max-list-length
        — max-time minutes
        — no max-time
        — timeout-action action
        — no timeout-action
```

## Router Interface Commands

```

config
  — router [router-name]
    — if-attribute
      — admin-group group-name value group-value
      — no admin-group group-name
      — srlg-group group-name value group-value [penalty-weight penalty-weight]
      — no srlg-group group-name
    — [no] interface ip-int-name gmpls-loopback
    — [no] interface ip-int-name [unnumbered-mpls-tp]
      — address {ip-address/mask | ip-address netmask} [broadcast all-ones | host-ones]
      — [track-srrp srrp-instance]
      — no address
      — [no] allow-directed-broadcasts
      — arp-limit limit [log-only] [threshold percent]
      — no arp-limit
      — 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
      — 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
        — [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] port-id
            — [no] service-id
            — string text
            — no string
            — [no] system-id
          — python-policy <[256 chars max]>
          — no python-policy
          — [no] relay-plain-bootp

```

```

— server server1 [server2...(up to 8 max)]
— no server
— [no] shutdown
— [no] trusted
— 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]
— [no] enable-ingress-stats
— [no] enable-mac-accounting
— icmp
— [no] mask-reply
— redirects [number seconds]
— no redirects
— ttl-expired [number seconds]
— no ttl-expired
— unreachables [number seconds]
— no unreachables
— if-attribute
— [no] admin-group group-name [group-name...(up to 5 max)]
— no admin-group
— [no] srlg-group group-name [group-name...(up to 5 max)]
— no srlg-group
— ingress
— filter ip ip-filter-id
— filter ipv6 ipv6-filter-id
— no filter [ip ip-filter-id][ipv6 ipv6-filter-id]
— [no] flowspec
— [no] flowspec-ipv6
— ip-mtu octets
— no ip-mtu
— lag-link-map-profile lnk-map-profile-id
— no lag-link-map-profile
— ldp-sync-timer seconds
— no ldp-sync-timer
— 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
— [no] local-proxy-arp
— [no] loopback
— mac ieee-mac-addr
— no mac
— [no] multihoming primary|secondary [hold-time holdover-time]
— network-domain network-domain-name
— no network-domain
— [no] ntp-broadcast
— port port-name
— no port
— [no] proxy-arp-policy

```

- [no] **ptp-hw-assist**
- **qos-route-lookup** [source | destination]
- **no qos-route-lookup**
- **qos** *network-policy-id* [**egress-port-redirect-group** *queue-group-name*] [**egress-instance** *instance-id*] [**ingress-fp-redirect-group** *queue-group-name* **ingress-instance** *instance-id*]
- **no qos**
- [no] **remote-proxy-arp**
- **secondary** {[*ip-addr/mask* | *ip-addr*][*netmask*]} [**broadcast** {*all-ones* | *host-ones*}] [**igp-inhibit**]
- **no secondary** [*ip-addr/mask* | *ip-addr*][*netmask* ]
- [no] **shutdown**
- **static-arp** *ip-addr* *ieee-mac-addr* *unnumbered*
- **no static-arp** *unnumbered*
- [no] **strip-label**
- **tcp-mss** *mss-value*
- **no tcp-mss**
- **tos-marking-state** {**trusted** | **untrusted**}
- **no tos-marking-state**
- **unnumbered** [*ip-addr* | *ip-int-name*]
- **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**
- [no] **mh-primary-interface**
  - **address** {*ip-address/mask* | *ip-address netmask*}
  - **no address**
  - **description** *description-string*
  - **no description**
  - [no] **shutdown**
- [no] **mh-secondary-interface**
  - **hold-time** *holdover-time*
  - **no hold-time**
  - **address** {*ip-address/mask* | *ip-address netmask*}
  - **no address**
  - **description** *description-string*
  - **no description**
  - [no] **shutdown**
- **route-next-hop-policy**
  - [no] **template** *template-name*
    - **include-group** *group-name* [**pref** *pref*]
    - **no include-group** *group-name*
    - [no] **exclude-group** *group-name*
    - [no] **srlg-enable**
    - **protection-type** {**link** | **node**}
    - **no protection-type**
    - **nh-type** {**ip** | **tunnel**}
    - **no nh-type**

For router interface VRRP commands, see [VRRP Command Reference on page 345](#).

## Router Interface IPv6 Commands

```

config
  — router [router-name]
    — [no] interface ip-int-name
      — [no] ipv6
        — address ipv6-address/prefix-length [eui-64]
        — 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
        — icmp6
          — packet-too-big [number seconds]
          — no packet-too-big
          — param-problem [number seconds]
          — no param-problem
          — redirects [number seconds]
          — no redirects
          — time-exceeded [number seconds]
          — no time-exceeded
          — unreachable [number seconds]
          — no unreachable
        — link-local-address ipv6-address [preferred]
        — [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
        — [no] qos-route-lookup
        — [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
        — stale-time seconds
        — no stale-time
        — tcp-mss mss-value
        — no tcp-mss
        — [no] urpf-check
          — mode {strict | loose | strict-no-ecmp}
          — no mode
      — [no] qos-route-lookup
      — [no] urpf-check
        — mode {strict | loose}
        — no mode

```

## Router Advertisement Commands

```

config
  — router
    — [no] router-advertisement
      — [no] dns-options
        — dns-servers ipv6-address
        — no dns-servers
        — rdnss-lifetime seconds
        — 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 | infinite}
          — 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] 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
  
```

## Show Commands

```

show
— router router-instance
— router service-name service-name
— aggregate [family] [active]
— arp [ip-int-name | ip-address/mask | mac ieee-mac-address | summary] [local | dynamic |
static | managed]
— authentication
— statistics
— statistics interface [ip-int-name | ip-address]
— statistics policy name
— bfd
— bfd-template template-name
— interface [interface-name]
— session [src ip-address [dst ip-address] | [detail]]
— session [type type]
— session [summary]
— dhcp
— statistics [ip-int-name | ip-address]
— summary
— dhcp6
— statistics [ip-int-name | ip-address]
— summary
— ecmp
— fib slot-number [family] [ip-prefix/prefix-length [longer]] [secondary]
— fib slot-number [family] summary
— fib slot-number nh-table-usage
— fp-tunnel-table slot-number [ip-prefix/prefix-length]
— icmp6
— if-attribute
— srlg-group [name]
— interface [{{ip-address|ip-int-name}}[detail] [family]}|summary| exclude-services]
— interface ip-address|ip-int-name eth-cfm [detail]
— interface ip-address|ip-int-name mac [ieee-address]
— interface ip-address|ip-int-name statistics
— interface dist-cpu-protection [detail]
— interface policy-accounting [class [index]]
— l2tp
— group [tunnel-group-name [statistics]]
— group connection-id connection-id [detail]
— group [detail] [session-id session-id (v2)] [state session-state][peer ip-address]
[group group-name] [assignment-id assignment-id] [local-namelocal-host-
name] [remote-name remote-host-name] [tunnel-id tunnel-id (v2)]
— session [detail] [state session-state] [peer ip-address] [group group-name]
[assignment-id assignment-id] [local-name local-host-name] [remote-name
remote-host-name] [control-connection-id connection-id (v3)]
— statistics
— tunnel [statistics] [detail] [peer ip-address] [state tunnel-state] [remote-connec-
tion-id remote-connection-id (v3)] [group group-name] [assignment-id assign-
ment-id] [local-name host-name] [remote-name host-name] tunnel [statistics]
[detail] [peer ip-address] [state tunnel-state] [remote-tunnel-id remote-tunnel-id
(v2)] [group group-name] [assignment-id assignment-id] [local-name host-
name] [remote-name host-name]
— tunnel tunnel-id tunnel-id (v2) [statistics] [detail]

```

- **tunnel connection-id** *connection-id (v3)* [**statistics**] [**detail**]
- **ldp**
  - **bindings active**
- **mvpn**
- **neighbor** [*ip-address* | *ip-int-name* | **mac** *ieee-mac-address* | **summary**]
- **network-domains** [**detail**] [*network-domain-name*]
- **policy** [*name* | **damping** | **prefix-list** *name* | **as-path** *name* | **community** *name* | **admin**]
- **policy-edits**
- **route-table** [*family*] [*ip-prefix[/prefix-length]*] [**longer|exact|protocol** *protocol-name*] [**all**]
- [**next-hop-type** *type*][**qos**][**alternative**]
- **route-table** [*family*] **summary**
- **route-table** *tunnel-endpoints* [**ip-prefix[/prefix-length]**] [**longer|exact**] [**detail**]
- **rtr-advertisement** [**interface** *interface-name*] [**prefix** *ipv6-prefix[/prefix-length]*] [**conflicts**]
- **service-prefix**
- **sgt-qos**
  - **application** [*app-name*] [**dscp-dot1p**]
  - **dscp-map** [*dscp-name*]
- **static-arp** [*ip-address* | *ip-int-name* | **mac** *ieee-mac-addr*]
- **static-route** [*family*] [[*ip-prefix /mask*] [**preference** *preference*] | [**next-hop** *ip-address*] | [**tag** *tag*] [**detail**]
- **status**
- **tms routes**
- **tunnel-table** [*ip-address[/mask]*] | [**protocol** *protocol* | **sdp** *sdp-id*] [**summary**]
- **neighbor** [*interface-name*]

## Clear Commands

```

clear
— router [router-instance]
— arp {all | ip-addr | interface {ip-int-name | ip-addr}}
— bfd
— session src-ip ip-address dst-ip ip-address
— statistics src-ip ip-address dst-ip ip-address
— statistics all
— dhcp
— statistics [ip-int-name | ip-address]
— dhcp6
— statistics [ip-int-name | ip-address]
— forwarding-table [slot-number]
— grt-lookup
— icmp-redirect-route {all | ip-address}
— icmp6 all
— icmp6 global
— icmp6 interface interface-name
— interface [ip-int-name | ip-addr] [icmp] [urpf-stats] [statistics]
— l2tp
— group tunnel-group-name
— statistics
— statistics
— tunnel tunnel-id
— statistics
— neighbor {all | ip-address}
— neighbor [interface ip-int-name | ip-address]
— router-advertisement all
— router-advertisement [interface interface-name]
— forwarding-table [slot-number]
— interface [ip-int-name | ip-addr] [icmp]

```

## Debug Commands

```

debug
  — trace
    — destination trace-destination
    — enable
    — [no] trace-point [module module-name] [type event-type] [class event-class] [task task-name] [function function-name]
  — router router-instance
    — ip
      — [no] arp
      — icmp
      — no icmp
      — icmp6 [ip-int-name]
      — no icmp6
      — [no] interface [ip-int-name | ip-address]
      — [no] neighbor
      — packet [ip-int-name | ip-address] [headers] [protocol-id]
      — no packet [ip-int-name | ip-address]
      — route-table [ip-prefix/prefix-length] [longer]
      — no route-table
      — tunnel-table [ip-address] [ldp | rsvp] [tunnel-id tunnel-id] [sdp [sdp-id sdp-id]]
    — mtrace
      — [no] misc
      — [no] packet [query | request | response]
    — tms [interface tms-interface] api [detail] tms-interface

```