

## Chapter 22

# VRRP Router Interfaces Operational Mode Commands

Table 44 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot Virtual Router Redundancy Protocol (VRRP) router interfaces. In the table, the commands are grouped by functionality. In the remainder of this chapter, they are explained alphabetically.

**Table 44: Commands for Monitoring VRRP Interfaces**

Task or Information to Monitor	CLI Command
Display VRRP groups.	show vrrp on page 326
Clear (zero) VRRP groups.	clear vrrp on page 325

### clear vrrp

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<b>Syntax</b>	clear vrrp statistics ( <i>interface-name</i>   all)
<b>Description</b>	Zero Virtual Router Redundancy Protocol (VRRP) interface statistics.
<b>Options</b>	all—Zero statistics on all interfaces. <i>interface-name</i> —Name of the interface.
<b>Required Privilege Level</b>	clear
<b>See Also</b>	show vrrp on page 326

## show vrrp

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<b>Syntax</b>	show vrrp <brief   detail   extensive   summary> (track   interface <i>interface-name</i> )
<b>Description</b>	Display information and status about Virtual Router Redundancy Protocol (VRRP) groups.
<b>Options</b>	<p>none—Same as brief.</p> <p>brief—(Optional) Display brief information.</p> <p>detail—(Optional) Display detailed information.</p> <p>extensive—(Optional) Display very detailed information.</p> <p>summary—(Optional) Display very brief information.</p> <p>track—Display information and status about VRRP groups.</p> <p>interface <i>interface-name</i>—(Optional) Name of an interface.</p>
<b>Required Privilege Level</b>	view
<b>Sample Output</b>	<p>Sample Output: show vrrp brief on page 330</p> <p>Sample Output: show vrrp detail on page 331</p> <p>Sample Output: show vrrp extensive on page 332</p> <p>Sample Output: show vrrp summary on page 331</p>

The sample outputs shown in the following sections are for the following configurations:

**Master router:**

```
[edit]
user@master-router# show interfaces ge-3/1/0
unit 0
  family-inet {
    address 192.168.29.254/24 {
      vrrp-group 10 {
        virtual-address 192.168.29.55;
        priority 200;
        advertise-interval 3;
        authentication-type simple;
        authentication-key "booJUM";
      }
    }
  }
}
```

```

Backup router:
[edit]
user@backup-router# show interfaces ge-5/2/0
unit 0
  family-inet {
    address 192.168.29.10/24 {
      vrrp-group 10 {
        virtual-address 192.168.29.55;
        priority 190;
        advertise-interval 3;
        authentication-type simple;
        authentication-key "booJUM";
      }
    }
  }
}

```

**Options at a Glance** Table 45 summarizes the information included in the output of each `show vrrp` command option. In this table, output fields are listed in alphabetical order. The Output Fields section lists the output fields in the order in which they are displayed.

**Table 45: Show VRRP Output Field Summary (Alphabetical Order)**

Options	Field Description
Extensive	Active—Total number of VRRP groups that are active (that is, whose interface state is either up or down).
Detail Extensive	Address—Address of the physical interface.
Detail Extensive	Advertisement interval—Configured VRRP advertisement interval.
Detail Extensive	Advertisement timer—How long until the advertisement timer expires, in seconds.
Detail Extensive	Authentication type—Configured VRRP authentication type: none, simple, or md5.
Detail Extensive	Dead timer—How long until the Master Is Dead timer expires, in seconds.
Extensive	Group state transition statistics—State transition statistics for the VRRP group.
Extensive	Group VRRP PDU error statistics—Errored statistics for the VRRP group.
Extensive	Group VRRP PDU statistics—Number of VRRP advertisements sent and received by the group.
Extensive	Groups—Total number of VRRP groups configured on the interface.
All	Group—VRRP group number.
All	Interface state—State of the physical interface.
Extensive	Interface index—Physical interface's index number, which reflects its initialization sequence.
Extensive	Interface VRRP PDU error statistics—Errored statistics for the logical interface.
Extensive	Interface VRRP PDU statistics—Nonerrored statistics for the logical interface.
All	Interface—Name of the local interface.
Detail Extensive	Master priority—Priority value of the router acting as the master.
Detail Extensive	Master router—IP address of the interface that is acting as the master.
Detail Extensive	Physical interface—Name of the interface.
Detail Extensive	Preempt—Whether preemption is allowed on the interface.
Detail Extensive	Priority—Configured VRRP priority for the interface.
Detail Extensive	State—VRRP state information.

Options	Field Description
Brief	Timer—VRRP timer information: A—How long until the advertisement timer expires, in seconds. D—How long until the Master Is Dead timer expires, in seconds.
Brief Summary	Type and Address—Identifier for the address and the address itself.
All	Unit—Logical unit number.
Detail Extensive	VIP count—Number of virtual IP addresses that have been configured on the interface.
Detail Extensive	VIP—List of virtual IP addresses configured on the interface.
Detail Extensive	Virtual MAC—MAC address associated with the virtual IP address.
Brief Summary	VR state—VRRP state information.

**Output Fields**

Interface—Name of the logical interface.

Interface index—(Extensive output only) Physical interface's index number, which reflects its initialization sequence.

Groups—(Extensive output only) Total number of VRRP groups configured on the interface.

Active—(Extensive output only) Total number of VRRP groups that are active (that is, whose interface state is either up or down).

Interface VRRP PDU statistics—(Extensive output only) Nonerrored statistics for the logical interface:

- Advertisement sent—Number of VRRP advertisement PDUs that the interface has transmitted.
- Advertisement received—Number of VRRP advertisement PDUs received from an interface.
- Packets received—Number of VRRP packets received for VRRP groups on the interface.
- No group match received—Number of VRRP packets received for VRRP groups that do not exist on the interface.

Interface VRRP PDU error statistics—(Extensive output only) Errored statistics for the logical interface:

- Invalid IPAH next type received—Number of packets received that use IPAH and that do not encapsulate VRRP packets.
- Invalid VRRP TTL value received—Number of packets received whose IP TTL value is not 255.
- Invalid VRRP version received—Number of packets received whose VRRP version is not 2.
- Invalid VRRP PDU type received—Number of packets received whose VRRP PDU type is not 1.

Invalid VRRP authentication type received—Number of packets received whose VRRP authentication is not none, simple, or md5.

Invalid VRRP IP count received—Number of packets received whose VRRP IP count exceeds 8.

Invalid VRRP checksum received—Number of packets received whose VRRP checksum does not match the calculated one.

Physical interface—Name of the physical interface.

Unit—Logical unit number.

Address—Address of the physical interface.

Type and Address—Identifier for the address and the address itself:

lcl—Configured local interface address.

mas—Address of the master virtual router. This address is displayed only when the local interface is acting as a backup router.

vip—Configured virtual IP addresses.

Interface state—State of the physical interface:

down—The device is present and the link is down.

not present—The interface is configured, but no physical device is present.

unknown—The VRRP process has not had time to query the kernel about the state of the interface.

up—The device is present and the link is up.

Group—VRRP group number.

State—VRRP state information:

backup—The interface is acting as the backup router interface.

bringup—VRRP is just starting, and the physical device is not yet present.

idle—VRRP is configured on the interface and is disabled. This can occur when VRRP is first enabled on an interface whose link is up.

initializing—VRRP is initializing.

master—The interface is acting as the master router interface.

transition—The interface is changing between being the backup and the master router.

Priority—Configured VRRP priority for the interface.

Advertisement interval—Configured VRRP advertisement interval.

- Authentication type—Configured VRRP authentication type: none, simple, or md5.
- Preempt—Whether preemption is allowed on the interface: yes or no.
- VIP count—Number of virtual IP addresses that have been configured on the interface.
- VIP—List of virtual IP addresses configured on the interface.
- Advertisement timer—How long until the advertisement timer expires, in seconds.
- Master router—IP address of the interface that is acting as the master.
- Virtual MAC—MAC address associated with the virtual IP address.
- Dead timer—How long until the Master Is Dead Timer expires, in seconds.
- Master priority—Priority value of the router acting as the master.
- Group VRRP PDU statistics—(Extensive output only) Number of VRRP advertisements sent and received by the group.
- Group VRRP PDU error statistics—(Extensive output only) Errored statistics for the VRRP group. For an explanation of the individual fields, see the explanation of the Interface VRRP PDU statistics field above.
- Group state transition statistics—(Extensive output only) State transition statistics for the VRRP group.
- VR state—VRRP information:
  - backup—The interface is acting as the backup router interface.
  - bringup—VRRP is just starting, and the physical device is not yet present.
  - idle—VRRP is configured on the interface and is disabled. This can occur when VRRP is first enabled on an interface whose link is up.
  - initializing—VRRP is initializing.
  - master—The interface is acting as the master router interface.
  - transition—The interface is changing between being the backup and the master router.
- Timer—(Brief output only) VRRP timer information:
  - A—How long until the advertisement timer expires, in seconds.
  - D—How long until the Master Is Dead timer expires, in seconds.

**Sample Output: show vrrp brief**

```

user@backup-router> show vrrp brief
Interface  Unit  Group  Type  Address      Int state  VR state  Timer
ge-5/2/0  0    10    lcl  192.168.29.10  up        backup   D 7.133
          vip  192.168.29.55
          mas  192.168.29.254
    
```

**Sample Output: show vrrp summary**

```

user@backup-router> show vrrp summary
Interface Unit Group Type Address Int state VR state
ge-5/2/0 0 10 lcl 192.168.29.10 up backup
vip 192.168.29.55
mas 192.168.29.254

```

**Sample Output: show vrrp interface**

```

user@master-router> show vrrp interface ge-3/1/0
Interface: ge-3/1/0, Ifindex: 1, Groups: 1, Active : 1
Interface VRRP PDU statistics
Advertisement sent : 377
Advertisement received : 0
Packets received : 0
No group match received : 0
Interface VRRP PDU error statistics
Invalid IPAH next type received : 0
Invalid VRRP ttl value received : 0
Invalid VRRP version received : 0
Invalid VRRP pdu type received : 0
Invalid VRRP authentication type received: 0
Invalid VRRP IP count received : 0
Invalid VRRP checksum received : 0

Physical Interface: ge-3/1/0, Unit: 0, Address: 192.168.29.254/24
Interface state: up, Group: 10, State: master
Priority: 200, Advertisement interval: 3, Authentication type: simple
Preempt: yes, VIP count: 1, VIP: 192.168.29.55
Advertisement timer : 1.597s, Master router: 192.168.29.254
Virtual MAC: 00:00:5e:00:01:0a
Group vrrp pdu statistics
Advertisement sent : 377
Advertisement received : 0
Group vrrp pdu error statistics
Bad auth type received : 0
Bad password received : 0
Bad MD5 digest received : 0
Bad advertisement timer received: 0
Bad VIP count received : 0
Bad VIPADDR received : 0
Group state transition statistics
Idle to master transitions : 0
Idle to backup transitions : 1
Backup to master transitions : 1
Master to backup transitions : 0

```

**Sample Output: show vrrp detail**

```

user@master-router> show vrrp detail
Physical interface: ge-3/1/0, Unit: 0, Address: 192.168.29.254/24
Interface state: up, Group: 10, State: master
Priority: 200, Advertisement interval: 3, Authentication type: simple
Preempt: yes, VIP count: 1, VIP: 192.168.29.55
Advertisement timer: 2.407s, Master router: 192.168.29.254
Virtual MAC: 00:00:5e:00:01:0a

```

**Sample Output: show vrrp extensive**

```

user@master-router> show vrrp extensive
Interface: ge-3/1/0, Interface index: 1, Groups: 1, Active : 1
Interface VRRP PDU statistics
  Advertisement sent      :    377
  Advertisement received  :     0
  Packets received       :     0
  No group match received :     0
Interface VRRP PDU error statistics
  Invalid IPAH next type received :     0
  Invalid VRRP ttl value received :     0
  Invalid VRRP version received   :     0
  Invalid VRRP pdu type received  :     0
  Invalid VRRP authentication type received:     0
  Invalid VRRP IP count received  :     0
  Invalid VRRP checksum received  :     0

Physical Interface: ge-3/1/0, Unit: 0, Address: 192.168.29.254/24
Interface state: up, Group: 10, State: master
Priority: 200, Advertisement interval: 3, Authentication type: simple
Preempt: yes, VIP count: 1, VIP: 192.168.29.55
Advertisement timer : 1.597s, Master router: 192.168.29.254
Virtual MAC: 00:00:5e:00:01:0a
Group VRRP PDU statistics
  Advertisement sent      :    377
  Advertisement received  :     0
Group VRRP PDU error statistics
  Bad authentication type received:     0
  Bad password received      :     0
  Bad MD5 digest received    :     0
  Bad advertisement timer received:     0
  Bad VIP count received     :     0
  Bad VIPADDR received      :     0
Group state transition statistics
  Idle to master transitions :     0
  Idle to backup transitions :     1
  Backup to master transitions :     1
  Master to backup transitions :     0
    
```