

VRRP Commands

This chapter describes the commands used to configure and monitor Virtual Router Redundancy Protocol (VRRP) features.

For detailed information about VRRP concepts, configuration tasks, and examples, refer to the *IP Addresses and Services Configuration Guide for Cisco 8000 Series Routers*.

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clear vrrp statistics

To reset the Virtual Router Redundancy Protocol (VRRP) statistics (to zero or default value), use the **clear vrrp statistics** command in XR EXEC mode.

clear vrrp statistics [**ipv4** | **ipv6**] [**interface type** *interface-path-id* | *vrid*]

Syntax Description

ipv4	(Optional) Resets the IPv4 VRRP statistics.
ipv6	(Optional) Resets the IPv6 VRRP statistics.
interface type	(Optional) Specifies the Interface type.
interface-path-id	(Optional) Specify a physical interface instance or a virtual interface instance for which VRRP statistics is cleared.
vrid	(Optional) Specify the virtual router identifier, which is the number identifying the virtual router for which VRRP statistics is cleared.

Command Default

No default behavior or values

Command History

Release	Modification
Release 7.9.1	This command was introduced.

Usage Guidelines

If no interface is specified, the statistics for all virtual routers on all interfaces are cleared.

If no value for vrid is specified, the statistics for all virtual routers on the specified interface are cleared.

Task ID

Task ID	Operations
ip-services	execute

Examples

The following example shows how to clear vrrp statistics:

```
RP/0/RP0/CPU0:router# clear vrrp statistics
```

show vrrp

To display a brief or detailed status of one or all Virtual Router Redundancy Protocol (VRRP) virtual routers, use the **show vrrp** command in XR EXEC mode.

show vrrp [**ipv4** | **ipv6**] [**interface** *type interface-path-id*] [**brief** | **detail** | **statistics** [**all**]]

Syntax Description

ipv4	(Optional) Displays the IPv4 information.
ipv6	(Optional) Displays the IPv6 information.
interface	(Optional) Displays the status of the virtual router interface.
type	Interface type. For more information, use the question mark (?) online help function.
interface-path-id	Physical interface or virtual interface. **Note** Use the show interfaces command to see a list of all interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
brief	(Optional) Provides a summary view of the virtual router information.
detail	(Optional) Displays detailed running state information.
statistics	(Optional) Displays total statistics.
all	(Optional) Displays statistics for each virtual router.

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 3.7.2	This command was introduced.

Release	Modification
Release 7.11.1	This command was modified. The fields **Mcast packet in Ucast mode**, **IPv4 Unicast Peer**, and **IPv4 Unicast Peer** were added.

Usage Guidelines

If no interface is specified, all virtual routers on all interfaces are displayed. If no vrid is specified, all vrids on the given interface are displayed.

Task ID

Task ID	Operations
vrrp	read

Examples

The following sample output is from the **show vrrp** command:

```
Router# show vrrp

                     A indicates IP address owner
                     | P indicates configured to preempt
                     | |
Interface   vrID Prio A P State    Master addr     VRouter addr
Te0/3/0/0      1  100   P Init     unknown         192.168.18.10
Te0/3/0/2      7  100   P Init     unknown         192.168.19.1
```

This table describes the significant fields shown in the display.

Table 1: show vrrp Command Field Descriptions

Field	Description
Interface	Interface of the virtual router.
vrID	ID of the virtual router.
Prio	Priority of the virtual router.
A	Indicates whether the VRRP router is the IP address owner.
P	Indicates whether the VRRP router is configured to preempt (default).
State	State of the virtual router.
Master addr	IP address of the IP address owner router.
VRouter addr	Virtual router IP address of the virtual router.

The following sample output is from the **show vrrp** command with the **detail** keyword:

```
Router# show vrrp detail
Fri Sep  8 15:02:35.268 IST
GigabitEthernet0/0/0/0 - IPv4 vrID 1
  State is Master
```

```
    2 state changes, last state change 04:00:02
    State change history:
    Sep  8 11:02:29.518 IST  Init     -> Backup   Virtual IP configured
    Sep  8 11:02:33.127 IST  Backup   -> Master   Master down timer expired
  Last resign sent:     Never
  Last resign received: Never
  Virtual IP address is 10.0.0.100
  Virtual MAC address is 0000.5E00.0101, state is active
  Master router is local
  Version is 2
  Advertise time 1 secs
    Master Down Timer 3.609 (3 x 1 + (156 x 1/256))
  Minimum delay 1 sec, reload delay 5 sec
  Current priority 100
    Configured priority 100, may preempt
      minimum delay 0 secs
  IPv4 Unicast Peer: 10.0.1.1 --> IPv4 unicast transport is enabled on VRRP.

GigabitEthernet0/0/0/0 - IPv6 vrID 2
  State is Init
    0 state changes, last state change never
    State change history:
  Last resign sent:     Never
  Last resign received: Never
  Virtual IP address is ::
  Virtual MAC address is 0000.5E00.0202, state is stored
  Master router is unknown
  Version is 3
  Advertise time 1 secs
    Master Down Timer 3.609 (3 x 1 + (156 x 1/256))
  Minimum delay 1 sec, reload delay 5 sec
  Current priority 100
    Configured priority 100, may preempt
      minimum delay 0 secs
  IPv6 Unicast Peer: FE80::260:3EFF:FE11:6770 --> IPv6 unicast transport is enabled on VRRP.
```

This table describes the significant fields shown in the displays.

Table 2: show vrrp detail Command Field Descriptions

Field	Description
0/3/0/0 - vrID 1	Interface type and number, and VRRP group number.
State is	Role this interface plays within VRRP (IP address owner router or backup router).
Virtual IP address is	Virtual IP address for this virtual router.
Virtual MAC address is	Virtual MAC address for this virtual router.
Master router is	Location of the IP address owner router.
Advertise time	Interval (in seconds) at which the router sends VRRP advertisements when it is the IP address owner virtual router. This value is configured with the **vrrp timer** command.

Field	Description
Master Down Timer	Time the backup router waits for the IP address owner router advertisements before assuming the role of IP address owner router.
Minimum delay	Time that the state machine start-up is delayed when an interface comes up, giving the network time to settle. The minimum delay is the delay that is applied after any subsequent interface up event (if the interface flaps) and the reload delay is the delay applied after the first interface up event.
Current priority	Priority of the virtual router.
Configured priority	Priority configured on the virtual router.
may preempt	Indication of whether preemption is enabled or disabled.
minimum delay	Delay time before preemption (default) occurs.
Tracked items	Section indicating the items being tracked by the VRRP router.
Interface	Interface being tracked.
State	State of the tracked interface.
Priority Decrement	Priority to decrement from the VRRP priority when the interface is down.
IPv4 Unicast Peer	IPv4 address of the unicast peer.
IPv6 Unicast Peer	IPv6 address of the unicast peer.

The following sample output is from the **show vrrp** command with the **statistics** .

```
show vrrp statistics
Fri Sep  8 15:03:03.521 IST
Invalid packets:
  Invalid checksum:                     0
  Unknown/unsupported versions:         0
  Invalid vrID:                         0
  Too short:                            0
Protocol:
  Transitions to Master                 1
Packets:
  Total received:                       0
  Adverts sent:                     14476
  Bad TTL:                              0
  Short Packets:                        0
  Failed authentication:                0
  Unknown authentication:               0
  Conflicting authentication:           0
  Unknown Type field:                   0
  Conflicting Advertise time:           0
  Conflicting Addresses:                0
  Received with zero priority:          0
  Sent with zero priority:              0
  Mcast packet in Ucast mode:           0
```

This table describes the significant fields shown in the displays.

Table 3: show vrrp statistics Command Field Descriptions

Field	Description
Invalid packets	Number of invalid packets.
Invalid checksum	Number of packets with checksum errors.
Unknown/unsupported versions	Number of packets with unknown/unsupported versions.
Invalid vrID	Number of packets with invalid VRRP ID
Too short	Number of packets that are too short.
Protocol	Role of the VRRP routers.
Transitions to Master	Number of VRRP routers that have taken over the master.
Packets	Number of packets received.
Total received	Cumulative number of packets received.
Adverts sent	Number of times the router has advertised its VRRP status.
Bad TTL	Number of packets with incorrect Time-to-Live values.
Short Packets	Number of packets with a size shorter than expected.
Failed authentication	Number of packets that failed authentication during VRRP operation.
Unknown authentication	Number of packets that failed authentication because the authentication was not recognized.
Conflicting authentication	Number of packets that failed authentication due to conflicts.
Conflicting IP addresses	Number of packets where conflicting IP addresses are detected within the VRRP configuration.
Received with zero priority	Number of packets received with zero priority.
Sent with zero priority	Number of packets sent by a VRRP router with a priority of zero.
Mcast packet in Ucast mode	Number of multicast packets received in a specific VRRP instance when it's configured to function in unicast mode.

The following sample output is from the **show vrrp** command with the **interface** for Ethernet interface 0/3/0/0:

```
Router# show vrrp interface Ethernet0/3/0/0

                     A indicates IP address owner
                     | P indicates configured to preempt
                     | |
Interface   vrID Prio A P State    Master addr     VRouter addr
```

```
Te0/3/0/0       1  100   P Init     unknown         192.168.10.20
Te0/3/0/2       7  100   P Init     unknown         192.168.20.0
```

show vrrp statistics

To display statistics of one or all Virtual Router Redundancy Protocol (VRRP) virtual routers, use the **show vrrp statistics** command in the XR EXEC mode.

show vrrp [**ipv4** | **ipv6**] [**interface type** *interface-path-id* | *vrid*] **statistics** [**all**]

Syntax Description

ipv4	(Optional) Displays the IPv4 information.
ipv6	(Optional) Displays the IPv6 information.
interface type	(Optional) Specifies the Interface type.
interface-path-id	(Optional) Specify a physical interface instance or a virtual interface instance.
vrid	(Optional) Specify the virtual router identifier, which is the number identifying the virtual router for which statistics is displayed.
all	(Optional) Displays statistics for each virtual router.

Command Default

No default behavior or values

Command History

Release	Modification
Release 7.9.1	This command was introduced.

Usage Guidelines

If no interface is specified, the statistics for all VRRP groups or VRIDs on all interfaces are displayed.

If no value for vrid is specified, the statistics for all virtual routers on the specified interface are displayed.

Task ID

Task ID	Operations
ip-services	read

Examples

The following is sample output from the **show vrrp statistics** command:

```
Router# show vrrp statistics
Invalid packets:
  Invalid checksum:                    0
  Unknown/unsupported versions:        3
  Invalid vrID:                        1
  Too short:                           7
Protocol:
  Transitions to Master                4
Packets:
  Total received:                      54
  Adverts sent:                        0
  Bad TTL:                             0
  Short Packets:                       6
  Failed authentication:               0
  Unknown authentication:              2
```

```
Conflicting authentication:           0
Unknown Type field:                   1
Conflicting Advertise time:           0
Conflicting Addresses:                0
Received with zero priority:          9
Sent with zero priority:              0
```

unicast-peer

To enable IPv4 and IPv6 layer 3 unicast transport on Virtual Router Redundancy Protocol (VRRP), use the command in VRRP virtual router submode. To disable unicast transport, use the **no** form of this command.

unicast-peer { *ipv4-address* | *ipv6-link-local-addres* }

Syntax Description

ipv4-address	IPv4 address
ipv6-link-local-address	IPv6 link-local address

Command Default

VRRP transmits multicast traffic.

Command Modes

VRRP virtual router configuration

Command History

Release	Modification
Release 7.11.1	This command was introduced.

Usage Guidelines

You can configure the unicast-peer command only once, allowing for the participation of only two physical routers in a unicast VRRP session.

When you configure the unicast-peer command, the router neither sends nor receives multicast packets

Task ID

Task ID	Operation
vrrp	read,write

Example

This example shows how to configure IPv4 Layer 3 unicast transport on VRRP.

```
Router(config)# router vrrp
Router(config-vrrp)# interface GigabitEthernet0/0/0/0
Router(config-vrrp-if)# address-family ipv4
Router(config-vrrp-address-family)# vrrp 1

Router(config-vrrp-virtual-router)# address 10.0.1.100

Router(config-vrrp-virtual-router)# unicast-peer 10.0.1.1
```

This example shows how to configure IPv6 Layer 3 unicast transport on VRRP.

```
Router(config)# router vrrp
Router(config-vrrp)# interface GigabitEthernet0/0/0/0
Router(config-vrrp-if)# address-family ipv6
Router(config-vrrp-address-family)# vrrp 2

Router(config-vrrp-virtual-router)# unicast-peer FE80::260:3EFF:FE11:6770
```