



# VRRP Commands

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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	
<b>ipv4</b>	(Optional) Resets the IPv4 VRRP statistics.
<b>ipv6</b>	(Optional) Resets the IPv6 VRRP statistics.
<b>interface type</b>	(Optional) Specifies the Interface type.
<i>interface-path-id</i>	(Optional) Specify a physical interface instance or a virtual interface instance for which VRRP statistics is cleared.
<i>vrid</i>	(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
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Command History	Release	Modification
	Release 7.9.1	This command was introduced.

Usage Guidelines	<p>If no interface is specified, the statistics for all virtual routers on all interfaces are cleared.</p> <p>If no value for vrid is specified, the statistics for all virtual routers on the specified interface are cleared.</p>
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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
<b>ipv4</b>	(Optional) Displays the IPv4 information.
<b>ipv6</b>	(Optional) Displays the IPv6 information.
<b>interface</b>	(Optional) Displays the status of the virtual router interface.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	Physical interface or virtual interface.  <b>Note</b> 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.
<b>brief</b>	(Optional) Provides a summary view of the virtual router information.
<b>detail</b>	(Optional) Displays detailed running state information.
<b>statistics</b>	(Optional) Displays total statistics.
<b>all</b>	(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 <b>Mcast packet in Ucast mode</b> , <b>IPv4 Unicast Peer</b> , and <b>IPv4 Unicast Peer</b> 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 <b>vrrp timer</b> 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
```

**show vrrp**

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

## show vrrp statistics

```
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-address* }

<b>Syntax Description</b>	<i>ipv4-address</i>	IPv4 address
	<i>ipv6-link-local-address</i>	IPv6 link-local address
<b>Command Default</b>	VRRP transmits multicast traffic.	
<b>Command Modes</b>	VRRP virtual router configuration	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 7.11.1	This command was introduced.
<b>Usage Guidelines</b>	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	
<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	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
```

