1 VRRP Commands

Command	Function
show vrrp	Display the information of a VRRP group.
show vrrp interface	Display the VRRP group information of a specified port.
show vrrp packet statistics	Display the statistics of VRRP packets.
vrrp ipv6 accept_mode	Enable the function of receiving packets whose destination addresses are the IPv6 address of a virtual router.
vrrp authentication	Enable the VRRP packet authentication function.
vrrp bfd (Global configuration mode)	Configure the global IPv4 VRRP bidirectional forwarding detection (BFD).
vrrp bfd (Interface configuration mode)	Configure BFD correlation for an IPv4 VRRP group.
vrrp delay	Configure a startup delay for a VRRP backup group.
vrrp description	Configure a name for a VRRP group.
vrrp detection-vlan	Configure a method of sending IPv4 VRRP packets on a super VLAN port.
vrrp mode dual-active	Configure an IPv4 VRRP group to run in dual-active mode.
vrrp ip	Configure an IPv4 VRRP backup group and specify a virtual IPv4 address.
vrrp ipv6	Configure an IPv6 VRRP backup group and specify a virtual IPv6 address.
vrrp preempt	Configure the preemption mode for a VRRP group.
vrrp priority	Configure a priority for a VRRP group.
vrrp timers advertise	Configure the interval for the master device in a VRRP group to send VRRP advertisements.
vrrp timers learn	Enable the timer learning function for a VRRP group.
vrrp track	Enable the port link or IP route accessibility tracking function of IPv4 VRRP.

vrrp ipv6 track	Enable the port link or IP route accessibility tracking function of IPv6 VRRP.
vrrp version	Configure the standard for sending VRRP multicast packets for IPv4 VRRP.

1.1 show vrrp

Function

Run the **show vrrp** command to display the information of a VRRP group.

Syntax

show [**ipv6**] **vrrp** [**brief** | *group-id*]

Parameter Description

ipv6: Indicates an IPv6 VRRP group. If this parameter is not specified, the information of an IPv4 VRRP group is displayed.

brief: Displays brief information of VRRP. If this parameter is not specified, the complete information is displayed.

group-id: ID of a VRRP group. The value ranges from 1 to 255. If this parameter is not specified, the information of all VRRP groups is displayed.

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

If no parameter is specified, the details of all IPv4 VRRP groups are displayed.

Examples

The following example displays the details of all the IPv4 VRRP groups.

```
Hostname> enable
Hostname# show vrrp
GigabitEthernet 0/1 - Group 1
State is Backup
Virtual IP address is 192.168.201.1 configured
Virtual MAC address is 0000.5e00.0101
Advertisement interval is 3 sec
Preemption is enabled
min delay is 0 sec
Priority is 100
Master Router is 192.168.201.213 , priority is 120
Master Advertisement interval is 3 sec
Master Down interval is 10.82 sec
GigabitEthernet 0/1 - Group 2
State is Master
Virtual IP address is 192.168.201.2 configured
Virtual MAC address is 0000.5e00.0102
```

```
Advertisement interval is 3 sec
Preemption is enabled
min delay is 0 sec
Priority is 120
Master Router is 192.168.201.217 (local), priority is 120
Master Advertisement interval is 3 sec
Master Down interval is 10.59 sec
```

The following example displays the details of all the IPv6 VRRP groups.

```
Hostname> enable
Hostname# show ipv6 vrrp
GigabitEthernet 0/13 - Group 1
  State is Master
  Virtual IPv6 address is as follows:
    FE80::2
    1::2
  Virtual MAC address is 0000.5e00.0201
  Advertisement interval is 1 sec
  Accept_Mode is enabled
  Preemption is enabled
    min delay is 0 sec
  Priority is 100
  Master Router is FE80::1 (local), priority is 100
  Master Advertisement interval is 1 sec
  Master Down interval is 3.60 sec
```

Table 1-1 Output Fields of the show vrrp Command

Field	Description
interface-type interface-number - Group *group-id*	● Backup group on a port. Here, *interface-type interface-number* indicates the type and number of the port, and *group-id* indicates the ID of the backup group.
State is *state*	The state of a VRRP group is *state*. Its value is as follows: ● **Master**: Indicates the master state. ● **Backup**: Indicates the backup state.
Virtual IP address is *ipv4-address* configured	Virtual IPv4 address of a backup group.
Virtual IPv6 address is as follows:*ipv6-address*	Virtual IPv6 address of a backup group.
Virtual MAC address is *mac-address*	Virtual MAC address of a backup group.
Advertisement interval is *interval* sec	The advertisement packet transmission interval is *interval* seconds.
Preemption is enabled	The preemption function of a backup group is enabled.

Field	Description
min delay is *min-delay* sec	The preemption delay of a backup group is *min-delay* seconds.
Priority is *priority*	The priority of a backup group is *priority*.
Master Router is *ipv4-address* (local), priority is *priority*	IP address and priority of a master router. Here, *ipv4-address* indicates an IPv4 address, and *priority* indicates a priority.
Master Advertisement interval is *interval* sec	The advertisement interval of a master router is *interval* second(s).
Master Down interval is *interval* sec	The interval for judging a failure of a master router is *interval* second(s).
Accept_Mode is enabled	The Accept_Mode of an IPv6 VRRP backup group is enabled.

The following example displays the brief information of all the IPv4 VRRP groups.

```
Hostname> enable
Hostname# show vrrp brief
Interface    Grp Pri timer   Own Pre State   Master addr      Group addr
Gi 0/1        1  100  10.82   -   P  Backup  192.168.201.213 192.168.201.1
Gi 0/1        2  120  10.59   -   P  Master  192.168.201.217 192.168.201.2
Hostname> enable
```

The following example displays the brief information of all the IPv6 VRRP groups.

```
Hostname# show ipv6 vrrp brief
Interface     Grp  Pri  timer  Own  Pre  State  Master addr  Group addr
Gi0/13         1   100  3.60    -    P   Master  FE80::1       FE80::2
```

Table 1-2 Output Fields of the show vrrp brief Command

Field	Description
Interface	Name of an Ethernet port.
Grp	ID of a VRRP backup group configured on a port.
Pri	Priority of a backup group.
timer	Interval for judging a failure of a master router, which is calculated by the backup group.
Own	Owner state of a backup group.
Pre	Preemption mode of a backup group.
State	State of a backup group.
Master addr	IP address of a master router.
Group addr	Primary virtual IP address of a backup group.

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

● **show vrrp interface**

● **show vrrp packet statistics**

1.2 show vrrp interface

Function

Run the **show vrrp interface** command to display the VRRP group information of a specified port.

Syntax

show [**ipv6**] **vrrp interface** *interface-type interface-number* [**brief**]

Parameter Description

ipv6: Indicates an IPv6 VRRP group. If this parameter is not specified, the information of an IPv4 VRRP group
is displayed.

interface-type interface-number: Type and number of the port.

brief: Displays the brief information of a VRRP group. If this parameter is not specified, the details of a VRRP
group are displayed.

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

If no parameter is specified, the details of an IPv4 VRRP group are displayed.

Examples

The following example displays the details of an IPv4 VRRP group on the port GigabitEthernet 0/1.

```
Hostname> enable
Hostname# show vrrp interface gigabitethernet 0/1
GigabitEthernet 0/1 - Group 1
State is Backup
Virtual IP address is 192.168.201.1 configured
Virtual MAC address is 0000.5e00.0101
```

```
Advertisement interval is 3 sec
Preemption is enabled
min delay is 0 sec
Priority is 100
Master Router is 192.168.201.213 , priority is 120
Master Advertisement interval is 3 sec
Master Down interval is 10.82 sec
GigabitEthernet 0/1 - Group 2
State is Master
Virtual IP address is 192.168.201.2 configured
Virtual MAC address is 0000.5e00.0102
Advertisement interval is 3 sec
Preemption is enabled
min delay is 0 sec
Priority is 120
Master Router is 192.168.201.217 (local), priority is 120
Master Advertisement interval is 3 sec
Master Down interval is 10.59 sec
```

Table 1-1 Output Fields of the show vrrp interface Command

Field	Description
interface-type interface-number - Group *group-id*	Backup group on a port. Here, *interface-type interface-number* indicates the type and number of the port, and *group-id* indicates the ID of the backup group.
State is *state*	The state of a VRRP group is *state*. Its value is as follows: ● **Master**: Indicates the master state. ● **Backup**: Indicates the backup state.
Virtual IP address is *ipv4-address* configured	Virtual IPv4 address of a backup group.
Virtual IPv6 address is as follows:*ipv6-address*	Virtual IPv6 address of a backup group.
Virtual MAC address is *mac-address*	Virtual MAC address of a backup group.
Advertisement interval is *interval* sec	The advertisement packet transmission interval is *interval* seconds.
Preemption is enabled	The preemption function of a backup group is enabled.
min delay is *min-delay* sec	The preemption delay of a backup group is *min-delay* seconds.
Priority is *priority*	The priority of a backup group is *priority*.
Master Router is *ipv4-address* (local), priority is *priority*	IP address and priority of a master router. Here, *ipv4-address* indicates an IPv4 address, and *priority* indicates a priority.

Field	Description
Master Advertisement interval is *interval* sec	The advertisement interval of a master router is *interval* second(s).
Master Down interval is *interval* sec	The interval for judging a failure of a master router is *interval* second(s).
Accept_Mode is enabled	The Accept_Mode of an IPv6 VRRP backup group is enabled.

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

- **show vrrp**
- **show vrrp packet statistics**

1.3   show vrrp packet statistics

Function

Run the **show vrrp packet statistics** command to display the statistics of VRRP packets.

Syntax

show vrrp packet statistics [*interface-type interface-number* | **total**]

Parameter Description

interface-type interface-number: Type and number of a port. If this parameter is not specified, the statistics of VRRP packets on all the ports are displayed.

total. Displays the total statistics of VRRP packets.

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example displays the statistics of VRRP packets on all the ports.

```
Hostname> enable
Hostname# show vrrp packet statistics
Total
   InReceives: 966043 packets, InOctets: 38641824, InErrors: 38826
   OutTransmits: 306079, OutOctets: 7798564
GigabitEthernet 0/1
   InReceives: 799665 packets, InOctets: 31986600, InErrors: 19657
   OutTransmits: 272931, OutOctets: 6675320
GigabitEthernet 0/2
   InReceives: 0 packets, InOctets: 0, InErrors: 0
   OutTransmits: 681, OutOctets: 16344
```

The following example displays the statistics of VRRP packets on the port GigabitEthernet 0/1.

```
Hostname> enable
Hostname# show vrrp packet statistics gigabitethernet 0/1
GigabitEthernet 0/1
   InReceives: 799911 packets, InOctets: 31996440, InErrors: 19657
   OutTransmits: 273053, OutOctets: 6677760
```

Table 1-1Output Fields of the show vrrp packet statistics Command

Field	Description
Total	Statistics of VRRP packets on all the ports, including: ● Number of all the received VRRP packets. ● Number of bytes in all the received VRRP packets. ● Number of all the received VRRP error packets. ● Number of all the sent VRRP packets. ● Number of bytes in all the sent VRRP packets.
interface-type interface-number	Statistics of VRRP packets on a specific port, including: ● Number of the VRRP packets received by the port. ● Number of bytes in the VRRP packets received by the port. ● Number of VRRP error packets received by the port. ● Number of the VRRP packets sent by the port. ● Number of bytes in the VRRP packets sent by the port. *interface-type interface-number* indicates the port type and port number.
InReceives	Number of the received VRRP packets.
InOctets	Number of bytes in the received VRRP packets.
InErrors	Number of the received VRRP error packets.
OutTransmits	Number of the sent VRRP packets.
OutOctets	Number of bytes in the sent VRRP packets.

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

- **show vrrp**

- **show vrrp interface**

1.4 vrrp ipv6 accept_mode

Function

Run the **vrrp ipv6 accept_mode** command to enable the function of receiving packets whose destination addresses are the IPv6 address of a virtual router.

Run the **no** form of this command to disable this feature.

By default, an IPv6 VRRP group in the master state is not permitted to receive packets whose destination addresses are the IPv6 address of a virtual router, except the IPv6 VRRP group in owner state or the received NA/NS packets.

Syntax

vrrp ipv6 *group-id* **accept_mode**

no vrrp ipv6 *group-id* **accept_mode**

Parameter Description

group-id: ID of a VRRP group. The value ranges from 1 to 255.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

This command is configured on a network port and takes effect for a virtual router in master state.

You can configure this command for an IPv6 VRRP backup group only.

Examples

The following example enables the IPv6 VRRP function on the port GigabitEthernet 0/1 on a router, sets the ID of this IPv6 VRRP group to 1, and enables the function of receiving packets whose destination addresses are the IPv6 address of the virtual router on IPv6 VRRP group 1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ipv6 enable
Hostname(config-if-GigabitEthernet 0/1)# ipv6 address 2001::2/64
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ipv6 fe80::1
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ipv6 2001::1
Hostname(config-if-GigabitEthernet 0/1)# vrrp ipv6 1 accept_mode
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

● **show vrrp**

1.5   vrrp authentication

Function

Run the **vrrp authentication** command to enable the VRRP packet authentication function.

Run the **no** form of this command to disable this feature.

The VRRP packet authentication function is disabled by default, and no authentication password is configured.

Syntax

vrrp *group-id* **authentication** *authentication-string*

no vrrp *group-id* **authentication**

Parameter Description

group-id: ID of a VRRP group. The value ranges from 1 to 255.

authentication-string: Authentication string for a VRRP group (it is a plaintext password of no more than eight bytes).

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

The same authentication password must be configured for routers in the same VRRP group. The plaintext authentication password cannot guarantee security but only prevents or prompts wrong VRRP configurations. This command applies to VRRPv2 only.

> ℹ️ **Note**
>
> Authentication is abolished for VRRPv3 (IPv4 VRRP and IPv6 VRRP). If VRRPv2 is selected for an IPv4 VRRP group, the command is effective; if VRRPv3 is chosen, the command is ineffective.

Examples

The following example enables the IPv4 VRRP function on the port GigabitEthernet 0/1, sets the ID of this IPv4 VRRP group to 1, enables the VRRP packet authentication function on IPv4 VRRP group 1, and sets the authentication password to "x30dn78k".

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip address 10.0.1.1 255.255.255.0
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ip 10.0.1.20
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 authentication x30dn78k
```

Notifications

When the length of an entered authentication password exceeds eight bytes, the following notification will be displayed:

```
VRRP: Maximum authentication string length is 8.
```

Common Errors

● Different authentication modes are configured on the routers in the same VRRP group, resulting in multiple master routers in the group.

● Plaintext password authentication is configured in a VRRP group, but the authentication strings are inconsistent, which results in multiple master routers in the group.

Platform Description

N/A

Related Commands

● **show vrrp**

1.6 vrrp bfd (Global configuration mode)

Function

Run the **vrrp bfd** command to configure the global IPv4 VRRP bidirectional forwarding detection (BFD).

Run the **no** form of this command to remove this configuration.

The global IPv4 VRRP BFD is not configured by default.

Syntax

vrrp bfd *interface-type interface-number ipv4-address*

no vrrp bfd

Parameter Description

interface-type interface-number: Type and number of a port.

ipv4-address: Neighbor IPv4 address to be detected by BFD.

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

Configuring global IPv4 VRRP BFD deletes the local correlation with BFD configured for all the single IPv4 VRRP groups.

If global IPv4 VRRP BFD is configured, reconfiguring it overwrites the old global BFD configuration, that is, the old global BFD configuration is deleted automatically.

For the port, on which BFD correlation needs to be configured, you need to configure the IP address and BFD session parameters first.

This command is only applicable to an IPv4 VRRP virtual router composed of two devices.

Examples

The following example configures global IPv4 VRRP BFD, detects the forwarding path between the master and backup routers of SVI 1 through BFD, and sets the neighbor IP address to be detected by BFD to 192.168.1.100.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# vrrp bfd vlan 1 192.168.1.100
```

Notifications

When the specified BFD port is not an L3 port, the following notification will be displayed:

```
% Command is rejected because the interface should be a layer 3 interface.
```

When the specified IP address is not a valid IP address, the following notification will be displayed:

```
% Command is rejected because the IP address 127.0.0.1 is invalid.
```

When there is a separate BFD session in a VRRP backup group, the following notification will be displayed:

```
% All vrrp group bfd sessions were deleted because of global vrrp bfd was
configured.
```

Common Errors

N/A

Platform Description

N/A

Related Commands

- **vrrp ip**
- **vrrp bfd (Interface configuration mode)**

1.7   vrrp bfd (Interface configuration mode)

Function

Run the **vrrp bfd** command to configure BFD correlation for an IPv4 VRRP group.

Run the **no** form of this command to remove this configuration.

BFD correlation with an IPv4 VRRP group is not configured by default.

Syntax

vrrp *group-id* **bfd** *ipv4-address*

no vrrp *group-id* **bfd** *ipv4-address*

Parameter Description

group-id: ID of a VRRP group. The value ranges from 1 to 255.

ipv4-address: Neighbor IPv4 address to be detected by BFD.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

If global IPv4 VRRP BFD is configured, BFD correlation with an IPv4 VRRP group is not allowed on a port.

Before configuring this command, make sure that the IP address and BFD session parameters have been configured for a port, on which BFD correlation needs to be configured.

Examples

The following example adds SVI 1 of device 1 and SVI 1 of device 2 to VRRP group 1, sets the IP addresses of SVI 1 to 1.1.1.2 and 1.1.1.3 respectively, sets the virtual IP address of the VRRP group to 1.1.1.1, and configures BFD correlation with the master and backup routes for VRRP backup group 1.

The configuration on device 1 is as follows:

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface vlan 1
```

```
Hostname(config-if-VLAN 1)# ip address 1.1.1.2 255.255.255.0
Hostname(config-if-VLAN 1)# bfd interval 50 min_rx 50 multiplier 3
Hostname(config-if-VLAN 1)# vrrp 1 ip 1.1.1.1
Hostname(config-if-VLAN 1)# vrrp 1 bfd 1.1.1.3
```

The configuration on device 2 is as follows:

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface vlan 1
Hostname(config-if-VLAN 1)# ip address 1.1.1.3 255.255.255.0
Hostname(config-if-VLAN 1)# bfd interval 50 min_rx 50 multiplier 3
Hostname(config-if-VLAN 1)# vrrp 1 ip 1.1.1.1
Hostname(config-if-VLAN 1)# vrrp 1 bfd 1.1.1.2
```

Notifications

When the specified IP address is not a valid IP address, the following notification will be displayed:

```
VRRP: 127.0.0.1 is not a valid host address.
```

When there is a global IPv4 VRRP BFD session, the following notification will be displayed:

```
% Command is rejected because global vrrp bfd[vrrp bfd VLAN 1 1.1.1.2]
configured.
```

Common Errors

N/A

Platform Description

N/A

Related Commands

● **bfd interval** (reliability/BFD)

● **vrrp ip**

● **vrrp bfd (Global configuration mode)**

1.8   vrrp delay

Function

Run the **vrrp delay** command to configure a startup delay for a VRRP backup group.

Run the **no** form of this command to remove this configuration.

No startup delay is configured for a VRRP backup group by default.

Syntax

vrrp delay { **minimum** *min-seconds* | **reload** *reload-seconds* } *

no vrrp delay

Parameter Description

minimum *min-seconds*: Configures a startup delay for a VRRP backup group when a port changes to the active state, in seconds. The value range is from 0 to 60, and the default value is **0**.

reload *reload-seconds*: Configures a startup delay for a VRRP backup group when the system is started, in seconds. The value range is from 0 to 60, and the default value is **0**.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

After a startup delay is configured for a VRRP group on a port, the VRRP backup group starts after the delay instead of starting immediately upon system startup or change of the port to the active state, to ensure that the non-preemption configuration takes effect. If the port receives a VRRP packet during the delay, the delay is canceled and VRRP is started immediately. This command configured on a network port is effective for both IPv4 VRRP and IPv6 VRRP.

Examples

The following example enables the IPv4 VRRP function on the port GigabitEthernet 0/1 of a router, and sets the IP address of the port to 10.0.1.2, the VRRP group ID to 1, the virtual IP address to 10.0.1.1, the VRRP group startup delay after system startup to 10 seconds, and the VRRP group startup delay when the port changes to the active state to 10 seconds.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# vrrp delay minimum 10 reload 10
Hostname(config-if-GigabitEthernet 0/1)# ip address 10.0.1.2 255.255.255.0
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ip 10.0.1.1
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.9 vrrp description

Function

Run the **vrrp description** command to configure a name for a VRRP group.

Run the **no** form of this command to remove this configuration.

No VRRP group name is configured by default.

Syntax

vrrp [**ipv6**] *group-id* **description** *group-name*

no vrrp [**ipv6**] *group-id* **description**

Parameter Description

ipv6: Indicates an IPv6 VRRP group. If this parameter is not specified, a name is configured for an IPv4 VRRP group.

group-id: ID of a VRRP group. The value ranges from 1 to 255.

group-name: Name of the VRRP group.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

Configuring a name for each VRRP group helps distinguish different VRRP groups.

Examples

The following example enables IPv4 VRRP on the port GigabitEthernet 0/1, and sets the group ID to 1 and group name to "BuildingA#", enables IPv6 VRRP on the port GigabitEthernet 0/2, and sets the group ID to 2 and group name to "BuildingB#".

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip address 10.0.1.2 255.255.255.0
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ip 10.0.1.1
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 description BuildingA#
Hostname(config-if-GigabitEthernet 0/1)# interface gigabitethernet 0/2
Hostname(config-if-GigabitEthernet 0/2)# vrrp 2 ipv6 fe80::1
Hostname(config-if-GigabitEthernet 0/2)# vrrp ipv6 2 description BuildingB#
```

Notifications

When the length of a configured VRRP group name exceeds 80 bytes, the following notification will be displayed:

```
% The length of description is up to 80!
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.10   vrrp detection-vlan

Function

Run the **vrrp detection-vlan** command to configure a method of sending IPv4 VRRP packets on a super VLAN port.

Run the **no** form of this command to restore the default configuration.

The IPv4 VRRP packets on a super VLAN port are sent to the first up sub VLAN only by default.

Syntax

vrrp detection-vlan { **first-subvlan** | *subvlan-id* }

no vrrp detection-vlan

Parameter Description

first-subvlan: Sends IPv4 VRRP packets only to the first up sub VLAN in a super VLAN.

subvlan-id: ID of a specified sub VLAN, to which IPv4 VRRP packets are sent. The value range is from 1 to 4094.

Command Modes

VLAN interface configuration mode

Default Level

14

Usage Guidelines

This command is configured on an SVI and effective only to super VLAN ports.

IPv4 VRRP packets can be sent in a super VLAN in three ways. Packets are sent to the first up sub VLAN in the super VLAN, or to a specified sub VLAN in the super VLAN, or to all the sub VLANs in the super VLAN. If VRRP and VRRP plus are both enabled on a super VLAN port, VRRP packets are sent to all the up sub VLAN ports of the super VLAN port.

Examples

The following example configures super VLAN 10 to send IPv4 VRRP packets to sub VLAN 2 only.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# vlan range 2-10
```

```
Hostname(config-vlan-range)# interface vlan 10
Hostname(config-if-VLAN 10)# supervlan
Hostname(config-if-VLAN 10)# subvlan 2-9
Hostname(config-if-VLAN 10)# ip address 10.10.1.2 255.255.255.0
Hostname(config-if-VLAN 10)# vrrp 1 ip 10.10.1.1
Hostname(config-if-VLAN 10)# vrrp detection-vlan 2
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

- **vrrp ip**

1.11   vrrp mode dual-active

Function

Run the **vrrp mode dual-active** command to configure an IPv4 VRRP group to run in dual-active mode.

Run the **no** form of this command to restore the default configuration.

An IPV4 VRRP group runs in the master/backup mode by default.

Syntax

vrrp mode dual-active

no vrrp mode

Parameter Description

N/A

Command Modes

VLAN interface configuration mode

Default Level

14

Usage Guidelines

Configure this command on an SVI.

This command is used to configure the running mode of a VRRP group on an SVI. When **vrrp mode dual-active** is configured, the backup group runs in dual-active mode, in which the VRRP devices at both ends are in the master state. After the **no vrrp mode** command is configured, the master/backup mode is restored.

Examples

The following example configures a VRRP group on SVI 2 to run in the dual-active mode.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# vlan 2
Hostname(config-vlan)# interface vlan 2
Hostname(config-if-VLAN 2)# vrrp mode dual-active
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.12   vrrp ip

Function

Run the **vrrp ip** command to configure an IPv4 VRRP backup group and specify a virtual IPv4 address.

Run the **no** form of this command to remove this configuration.

No IPv4 VRRP backup group is configured by default.

Syntax

vrrp *group-id* **ip** *ipv4-address* [**secondary**]

no vrrp *group-id* **ip** *ipv4-address* [**secondary**]

Parameter Description

group-id: ID of a VRRP group. The value ranges from 1 to 255.

ipv4-address: Virtual IPv4 address of an IPv4 VRRP backup group.

secondary: Configures the secondary IPv4 address for the virtual IP address of an IPv4 VRRP backup group.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

If the **secondary** parameter is not specified, the configured IP address becomes the primary IP address of a VRRP backup group.

Examples

The following example enables the VRRP function on the port GigabitEthernet 0/1, and sets the ID of this VRRP group to 1, the primary IP address of the VRRP backup group to 10.0.1.20, and the secondary IP address to 10.0.2.20.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip address 10.0.1.1 255.255.255.0
Hostname(config-if-GigabitEthernet 0/1)# ip address 10.0.2.1 255.255.255.0
secondary
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ip 10.0.1.20
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ip 10.0.2.20 secondary
```

Notifications

When the **no** form of this command is configured on a port but there is no backup group of the specified backup group ID on this port, the following notification will be displayed:

```
VRRP:there is not ipv4 group 1 on interface Vl10.
```

When the specified virtual IP address is not a valid IP address, the following notification will be displayed:

```
VRRP:127.0.0.1 is not a valid host address.
```

When a virtual IP address is configured on a port, the port is bound to the multi-protocol virtual routing and forwarding (VRF) instance, but the VRF instance is not configured with an IPv4 address family, the following notification will be displayed:

```
VRRP: VLAN 10 is linked to a VRF. Enable IPv4 on that VRF first.
```

When the configured virtual IP address overlaps with the IP address of another port in the same VRF instance, the following notification will be displayed:

```
VRRP: 192.168.23.160 overlaps with other interface's address.
```

When the configured virtual IP address is a subnet address or broadcast address on the port, the following notification will be displayed:

```
VRRP: IP address 192.168.23.0 cannot be equal to interface broadcast or subnet
address.
```

When a backup group is not configured with a primary virtual IP address but configured with a secondary virtual IP address directly, the following notification will be displayed:

```
VRRP: the first address assigned to IPv4 virtual router must be primary address!
```

When the **no** form of this command is configured to delete a secondary virtual IP address, but the secondary virtual IP address is not configured on the backup group, the following notification will be displayed:

```
VRRP: 192.168.23.162 is not secondary virtual IP address of ipv4 group 1 on
interface vl2.
```

When the **no** form of this command is configured to delete a primary virtual IP address but the primary virtual IP address is not configured on the backup group, the following notification will be displayed:

```
VRRP: 192.168.23.160 is not primary virtual IP address of ipv4 group 2 on
interface vl2.
```

When the **no** form of this command is configured to delete a primary virtual IP address but a secondary virtual IP address is configured on the backup group, the following notification will be displayed:

```
VRRP: all secondary addresses must be deleted before deleting primary address.
```

Common Errors

● Different virtual IP addresses are specified for the routers in the same VRRP backup group, resulting in multiple master routers in the group.

Platform Description

N/A

Related Commands

N/A

1.13   vrrp ipv6

Function

Run the **vrrp ipv6** command to configure an IPv6 VRRP backup group and specify a virtual IPv6 address.

Run the **no** form of this command to remove this configuration.

No IPv6 VRRP backup group is configured by default.

Syntax

vrrp *group-id* **ipv6** *ipv6-address*

no vrrp *group-id* **ipv6** *ipv6-address*

Parameter Description

group-id: ID of a VRRP group. The value ranges from 1 to 255.

ipv6-address: Virtual IPv6 address of an IPv6 VRRP backup group.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

The IPv6 VRRP groups and IPv4 VRRP groups share the group ID range from 1 to 255. One VRRP backup group ID is applicable to an IPv4 VRRP backup group and an IPv6 VRRP backup group configured on the same port.

The first configured address must be a link local address, which can be deleted only after other virtual addresses are deleted.

Examples

The following example enables the IPv6 VRRP function on the port GigabitEthernet 0/1 on a router, and sets the ID of this VRRP group to 1 and the virtual IPv6 addresses to FE80::1 and 2001::1 respectively.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)#ipv6 enable
Hostname(config-if-GigabitEthernet 0/1)#ipv6 address 2001::2/64
Hostname(config-if-GigabitEthernet 0/1)#vrrp 1 ipv6 fe80::1
Hostname(config-if-GigabitEthernet 0/1)#vrrp 1 ipv6 2001::1
```

Notifications

When the **no** form of this command is configured on a port but there is no backup group of the specified backup group ID on this port, the following notification will be displayed:

```
VRRP:there is not ipv6 group 1 on interface vl2.
```
When the specified virtual IP address is not a valid IPv6 address, the following notification will be displayed:

```
VRRP:::1 is not a valid host address.
```
When a virtual IP address is configured on a port, the port is bound to a multi-protocol VRF instance, but the VRF instance is not configured with an IPv6 address family, the following notification will be displayed:

```
VRRP: VLAN 2 is linked to a VRF. Enable IPv6 on that VRF first.
```
When the configured virtual IP address overlaps with the IP address of another port in the same VRF instance, the following notification will be displayed:

```
VRRP: 2001::66 overlaps with other interface's address.
```
When the first virtual IP address configured for the backup group is not a link local address, the following notification will be displayed:

```
VRRP: the first address assigned to IPv6 virtual router must be link-local
address.
```
When the **no** form of this command is configured to delete a virtual IP address, but the virtual IP address is not configured on the backup group, the following notification will be displayed:

```
VRRP: FE80::66 is not virtual IPv6 address of ipv6 group 1 on interface vl2.
```
When the **no** form of this command is configured to delete a link local address, but there is also a non-link local address, the following notification will be displayed:

```
VRRP: link-local address must be deleted at last.
```

Common Errors

● Different virtual IP addresses are specified for the routers in the same VRRP backup group, resulting in multiple master routers in the group.

Platform Description

N/A

Related Commands

N/A

1.14   vrrp preempt

Function

Run the **vrrp preempt** command to configure the preemption mode for a VRRP group.

Run the **no** form of this command to remove this configuration.

The VRRP backup group function is disabled by default. If the VRRP function is enabled, a VRRP backup group runs in preemption mode, and the master state is advertised without a delay.

Syntax

vrrp [**ipv6**] *group-id* **preempt** [**delay** *delay-seconds*]

no vrrp [**ipv6**] *group-id* **preempt** [**delay**]

Parameter Description

ipv6: Indicates an IPv6 VRRP group. If this parameter is not specified, this command configures the preemption mode for an IPv4 VRRP group.

group-id: ID of a VRRP group. The value ranges from 1 to 255.

delay-seconds: Delay time for advertising the master state, in seconds. The value range is from 0 to 255.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

If a VRRP group runs in preemption mode, a higher priority router takes the place of the lower priority master router. If a VRRP group runs in non-preemption mode, a router with a priority higher than that of the master router remains in backup state.

If the virtual IP address of a VRRP group is the same as the IP address of the port (in the owner state), the configured preemption mode is not effective, because the VRRP backup group of the port has the maximum priority 255, and automatically becomes the master device in the VRRP group.

Examples

The following example enables the IPv4 VRRP function on the port GigabitEthernet 0/1 of a router, sets the ID of this IPv4 VRRP group to 1, and configures the router to preempt to become the master device after waiting for 15 seconds if the router judges that its priority (200) is higher than that of the current master device.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip address 10.0.1.1 255.255.255.0
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ip 10.0.1.20
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 preempt delay 15
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 priority 200
```

The following example enables the IPv6 VRRP function on the port GigabitEthernet 0/1 on a router, sets the ID of this IPv6 VRRP group to 1, and configures the router to preempt to become the master device after waiting for 15 seconds if the router finds that its priority (200) is higher than that of the current master device.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ipv6 enable
Hostname(config-if-GigabitEthernet 0/1)# ipv6 address 2001::2/64
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ipv6 fe80::1
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ipv6 2001::1
Hostname(config-if-GigabitEthernet 0/1)# vrrp ipv6 1 preempt delay 15
Hostname(config-if-GigabitEthernet 0/1)# vrrp ipv6 1 priority 200
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

- **vrrp priority**

1.15   vrrp priority

Function

Run the **vrrp priority** command to configure a priority for a VRRP group.

Run the **no** form of this command to restore the default configuration.

The VRRP function is disabled by default. If the VRRP function is enabled, the priority of a VRRP group is 100.

Syntax

vrrp [**ipv6**] *group-id* **priority** *priority*

no vrrp [**ipv6**] *group-id* **priority**

Parameter Description

ipv6: Indicates an IPv6 VRRP group. If this parameter is not specified, this command configures the priority of an IPv4 VRRP group.

group-id: ID of a VRRP group. The value ranges from 1 to 255.

priority: Priority of a VRRP group. The value range is from 1 to 254.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example enables the IPv4 VRRP function on the port GigabitEthernet 0/1 of a router, and sets the ID of this IPv4 VRRP group to **1** and the priority of IPv4 VRRP group 1 to **254**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip address 10.0.1.1 255.255.255.0
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ip 10.0.1.20
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 priority 254
```

The following example enables the IPv6 VRRP function on the port GigabitEthernet 0/1 on a router, and sets the ID of this IPv6 VRRP group to **1** and the priority of IPv6 VRRP group 1 to **254**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)#ipv6 enable
Hostname(config-if-GigabitEthernet 0/1)#ipv6 address 2001::2/64
Hostname(config-if-GigabitEthernet 0/1)#vrrp 1 ipv6 fe80::1
Hostname(config-if-GigabitEthernet 0/1)#vrrp 1 ipv6 2001::1
Hostname(config-if-GigabitEthernet 0/1)#vrrp ipv6 1 priority 254
```

Notifications

When the current backup group is in the owner state, the following notification will be displayed:

```
VRRP: Priority change will have no effect while interface is VRRP address owner.
```

Common Errors

N/A

Platform Description

N/A

Related Commands

● **vrrp preempt**

● **vrrp track**

1.16   vrrp timers advertise

Function

Run the **vrrp timers advertise** command to configure the interval for the master device in a VRRP group to send VRRP advertisements.

Run the **no** form of this command to restore the default configuration.

The VRRP function is disabled by default. If the VRRP function is enabled, the interval for the master device to send advertisements is 1 second.

Syntax

vrrp [**ipv6**] *group-id* **timers advertise** { *advertise-interval* | **csec** *centisecond-interval* }

no vrrp [**ipv6**] *group-id* **timers advertise**

Parameter Description

ipv6: Indicates an IPv6 VRRP group. If this parameter is not specified, this command configures the interval for a device in an IPv4 VRRP group to send VRRP advertisements.

group-id: ID of a VRRP group. The value ranges from 1 to 255.

advertise-interval: Interval for sending VRRP advertisements, in seconds. The value range is from 1 to 255.

csec *centisecond-interval*: Specifies the interval for the master device in a backup group to send VRRP packets, in centiseconds. The value is an integer in the range from 50 to 99. No default value is provided. The command is only effective to VRRPv3 packets. If it is configured for VRRPv2, the default interval is **1** second for the master device.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

If the current device is elected as the master device in a VRRP group, it sends VRRP advertisement packets at the set interval to advertise its VRRP state, priority, and other information.

According to the RFC standard, the maximum interval for advertising multicast packets is **40** seconds. Therefore, if the advertisement interval configured is longer than 40 seconds, the maximum advertisement interval is applied, though the configuration is effective.

Examples

The following example enables the VRRP function on the port GigabitEthernet 0/1, and sets the ID of the backup group to 1 and the interval for sending IPv4 VRRP advertisements to 4 seconds.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip address 10.0.1.1 255.255.255.0
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ip 10.0.1.20
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 timers advertise 4
```

The following example enables the IPv6 VRRP function on the port GigabitEthernet 0/1 on a router, and sets the ID of the IPv6 VRRP group to 1 and the interval for sending IPv6 VRRP advertisements to 4 seconds.

```
Hostname> enable
Hostname# configure terminal
```

```
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ipv6 enable
Hostname(config-if-GigabitEthernet 0/1)# ipv6 address 2001::2/64
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ipv6 fe80::1
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ipv6 2001::1
Hostname(config-if-GigabitEthernet 0/1)# vrrp ipv6 1 timers advertise 4
```

The following example enables the VRRP function on the port GigabitEthernet 0/1, and sets the ID of the backup group to 1 and the interval for sending IPv4 VRRP advertisements to 50 centiseconds.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip address 10.0.1.1 255.255.255.0
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ip 10.0.1.20
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 version 3
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 timers advertise csec 50
```

The following example enables the IPv6 VRRP function on the port GigabitEthernet 0/1 on a router, and sets the ID of the IPv6 VRRP group to 1 and the interval for sending IPv6 VRRP advertisements to 50 centiseconds.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ipv6 enable
Hostname(config-if-GigabitEthernet 0/1)# ipv6 address 2001::2/64
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ipv6 fe80::1
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ipv6 2001::1
Hostname(config-if-GigabitEthernet 0/1)# vrrp ipv6 1 timers advertise csec 50
```

Notifications

When an IPv4 VRRP or IPv6 VRRP group is configured to adopt VRRPv3 for sending multicast packets, if the configured interval for sending advertisements exceeds 40 seconds, the following notification will be displayed:

```
VRRP: The Maximum adver time of VRRPv3 Packet is 40s.
```

Common Errors

N/A

Platform Description

N/A

Related Commands

- **vrrp version**

1.17   vrrp timers learn

Function

Run the **vrrp timers learn** command to enable the timer learning function for a VRRP group.

Run the **no** form of this command to disable this feature.

The timer learning function of a VRRP group is disabled by default.

Syntax

vrrp [**ipv6**] *group-id* **timers learn**

no vrrp [**ipv6**] *group-id* **timers learn**

Parameter Description

ipv6: Indicates an IPv6 VRRP group. If this parameter is not specified, the timer learning function of an IPv4 VRRP group is enabled by default.

group-id: ID of a VRRP group. The value ranges from 1 to 255.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

When the timer learning function is enabled on a backup router, it learns the VRRP advertisement transmission interval from the master device and calculates the interval for determining the failure of the master device if no packet is received from the master device, instead of using the locally configured VRRP advertisement transmission interval for calculation.

This command achieves synchronization of the VRRP advertisement transmission timer between the master and backup routers.

Examples

The following example enables the IPv4 VRRP function on the port GigabitEthernet 0/1 of a router, sets the ID of this IPv4 VRRP group to 1, and enables the timer learning function on IPv4 VRRP group 1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip address 10.0.1.1 255.255.255.0
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ip 10.0.1.20
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 timers learn
```

The following example enables the IPv6 VRRP function on the port GigabitEthernet 0/1 on a router, sets the ID of this IPv6 VRRP group to 1, and enables the timer learning function on IPv6 VRRP group 1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ipv6 enable
Hostname(config-if-GigabitEthernet 0/1)# ipv6 address 2001::2/64
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ipv6 fe80::1
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ipv6 2001::1
Hostname(config-if-GigabitEthernet 0/1)# vrrp ipv6 1 timers learn
```

Notifications

N/A

Common Errors

● Different VRRP advertisement transmission intervals are configured in a VRRP group and the timer learning function is not configured, resulting in multiple master routers in the group.

Platform Description

N/A

Related Commands

● **vrrp timers advertise**

1.18   vrrp track

Function

Run the **vrrp track** command to enable the port link or IP route accessibility tracking function of IPv4 VRRP.

Run the **no** form of this command to disable this feature.

The IPv4 VRRP tracking function is disabled by default.

Syntax

vrrp *group-id* **track** { **bfd** *interface-type interface-number ipv4-address* | *interface-type interface-number* | *ipv4-address* [**interval** *interval-value*] [**timeout** *timeout-value*] [**retry** *retry-value*] } [*Priority*]

no vrrp *group-id* **track** { *interface-type interface-number* | **bfd** *interface-type interface-number ipv4-address* | *ipv4-address* }

Parameter Description

group-id: ID of a VRRP group. The value ranges from 1 to 255.

bfd *interface-type interface-number ipv4-address*: Tracks the neighbor IPv4 address of a specified port through BFD.

interface-type interface-number: Type and number of the monitored port.

ipv4-address: IPv4 address to be monitored.

interval *interval-value*: Configures the interval for sending detection packets, in seconds. The value range is from 1 to 3600. The default value is **3**.

timeout *timeout-value*: Configures the timeout time of waiting for a response to a sent detection packet, in seconds. If no response is received when the timeout time is up, it is determined that the destination is inaccessible once. The value range is from 1 to 60. The default value is **1**.

retry *retry-value*: Configures the number of retries. If no response is received for consecutive *retry-value* times, it is determined that the tracking status is inaccessible. The value range is from 1 to 60. The default value is **3**.

priority: VRRP priority change value when a monitored port link state or IP route accessibility state changes (for example, when the link is disconnected, the priority is reduced; when the link recovers, the priority is restored). The value range is from 1 to 255, and the default value is **10**.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

You can use this command to monitor the egress link state and route accessibility state. A monitored port must be a routable L3 logical port (for example: a routed port, an SVI, a loopback port, or a tunnel port).

To monitor a host, specify its IPv4 address.

If a VRRP group uses the actual IP address of an Ethernet port, the group priority is 255, and the monitored IP address or port can be configured, but the priority of the VRRP group is not changed.

Examples

The following example enables the IPv4 VRRP function on the port GigabitEthernet 0/1 of a router, sets the ID of this IPv4 VRRP group to 1, and configures VRRP group 1 to monitor GigabitEthernet 0/1. In this case, if the GigabitEthernet 0/1 link is disconnected, the priority of the VRRP group is reduced by 30; after the link of GigabitEthernet 0/1 is restored, the priority of VRRP group 1 is restored.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip address 10.0.1.1 255.255.255.0
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ip 10.0.1.20
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 priority 254
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 track GigabitEthernet 0/1 30
```

The following example enables the IPv4 VRRP function on the port GigabitEthernet 0/1 of a router, sets the ID of this IPv4 VRRP group to 1, configures VRRP group 1 to track the port GigabitEthernet0/1 through BFD, and sets the tracked neighbor IP address to 192.168.1.3. In this case, if the BFD tracking result is inaccessible, the priority of the VRRP group is reduced by 30; when the tracking result is accessible again, the priority of VRRP group 1 is restored.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip address 192.168.1.1 255.255.255.0
Hostname(config-if-GigabitEthernet 0/1)# bfd interval 50 min_rx 50 multiplier 3
Hostname(config-if-GigabitEthernet 0/1)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip address 192.168.201.17 255.255.255.0
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 priority 120
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ip 192.168.201.1
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 track bfd gigabitethernet 0/1
192.168.1.3 30
```

Notifications

When the monitored port is not an L3 port, the following notification will be displayed:

```
VRRP: tracked interface must be a Layer 3 interface.
```
When the monitored IP address is not a valid IP address, the following notification will be displayed:

```
VRRP: 127.0.0.1 is not a valid host address.
```
When interval-value of the monitored address configured is smaller than timeout-value, the following notification will be displayed:

```
VRRP: interval must not be less than timeout.
```
When a specified VRRP group is configured to track a specified neighbor through BFD and the tracked port is not an L3 interface, the following notification will be displayed:

```
VRRP: tracked interface must be a Layer 3 interface.
```
When a specified VRRP group is configured to track a specified neighbor through BFD, but the neighbor address is not a valid address, the following notification will be displayed:

```
VRRP: 127.0.0.1 is not a valid host address.
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.19   vrrp ipv6 track

Function

Run the **vrrp ipv6 track** command to enable the port link or IP route accessibility tracking function of IPv6 VRRP.

Run the **no** form of this command to disable this feature.

The IPv6 VRRP tracking function is disabled by default.

Syntax

vrrp ipv6 *group-id* **track** { *interface-type interface-number* | { *ipv6-global-address* | *ipv6-linklocal-address interface-type interface-number* } [**interval** *interval-value*] [**timeout** *timeout-value*] [**retry** *retry-value*] | **bfd** *interface-type interface-number peer-ipv6-address* } [*Priority*]

no vrrp ipv6 *group-id* **track** { *interface-type interface-number* | *ipv6-global-address* | *ipv6-linklocal-address interface-type interface- number* | **bfd** *interface-type interface-number peer-ipv6-address* }

Parameter Description

group-id: ID of a VRRP group. The value ranges from 1 to 255.

interface-type interface-number: Type and number of the monitored port.

ipv6-global-address: IPv6 global unicast address.

ipv6-linklocal-address: IPv6 link local address.

interval *interval-value*: Configures the interval for sending detection packets, in seconds. The value range is from 1 to 3600. The default value is **3**.

timeout *timeout-value*: Configures the timeout time of waiting for a response to a sent detection packet, in seconds. If no response is received when the timeout time is up, it is determined that the destination is inaccessible once. The value range is from 1 to 60. The default value is **1**.

retry *retry-value*: Configures the number of retries. If no response is received for consecutive *retry-value* times, it is determined that the tracking status is inaccessible. The value range is from 1 to 60. The default value is **3**.

priority: VRRP priority change value when a monitored port link state or IP route accessibility state changes (for example, when the link is disconnected, the priority is reduced; when the link recovers, the priority is restored). The value range is from 1 to 255, and the default value is **10**.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

You can use this command to monitor the egress link state and route accessibility state. A monitored port must be a routable L3 logical port (for example: a routed port, an SVI, a loopback port, or a tunnel port).

To monitor a host, only specify its IPv6 address.

If a tracked host IP address is a link local address, specify a network port.

If a VRRP group uses the actual IP address of an Ethernet port, the group priority is 255, and the monitored IP address or port can be configured, but the priority of the VRRP group is not changed.

Examples

The following example enables the IPv6 VRRP function on the port GigabitEthernet 0/1 on a router, sets the ID of this IPv6 VRRP group to 1, and configures VRRP group 1 to track whether the host 1000::1 is accessible. If it is inaccessible, the priority of the VRRP group is reduced to the default value **10**. After the accessibility recovers, the priority is restored.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ipv6 enable
Hostname(config-if-GigabitEthernet 0/1)# ipv6 address 2001::2/64
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ipv6 fe80::1
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ipv6 2001::1
Hostname(config-if-GigabitEthernet 0/1)# vrrp ipv6 1 priority 254
Hostname(config-if-GigabitEthernet 0/1)# vrrp ipv6 1 track 1000::1
```

The following example enables the IPv6 VRRP function on the port GigabitEthernet 0/1 on a router, sets the ID of this IPv6 VRRP group to 1, configures VRRP group 1 to track whether the host FE80::2 on SVI 1 is accessible, and reduces the priority of the VRRP group to 20 when the host is accessible. After the accessibility recovers, the priority is restored.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ipv6 enable
Hostname(config-if-GigabitEthernet 0/1)# ipv6 address 2001::2/64
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ipv6 fe80::1
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ipv6 2001::1
Hostname(config-if-GigabitEthernet 0/1)# vrrp ipv6 1 priority 254
Hostname(config-if-GigabitEthernet 0/1)# vrrp ipv6 1 track fe80::2 vlan 1 20
```

Notifications

When the monitored port is not an L3 port, the following notification will be displayed:

```
VRRP: tracked interface must be a Layer 3 interface.
```

When the monitored IP address is not a valid IP address, the following notification will be displayed:

```
VRRP: 127.0.0.1 is not a valid host address.
```

When interval-value of the monitored address configured is smaller than timeout-value, the following notification will be displayed:

```
VRRP: interval must not be less than timeout.
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.20   vrrp version

Function

Run the **vrrp version** command to configure the standard for sending VRRP multicast packets for IPv4 VRRP.

Run the **no** form of this command to restore the default configuration.

The default standard for sending IPv4 VRRP packets is VRRPv2 on a port.

Syntax

vrrp *group-id* **version** { **2** | **3** }

no vrrp *group-id* **version**

Parameter Description

group-id: ID of a VRRP group. The value range is from 1 to 255.

version 2: Uses the VRRPv2 standard to send multicast packets.

version 3: Uses the VRRPv3 standard to send multicast packets.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

This command applies to IPv4 VRRP only.

For IPv4 VRRP, to meet the requirements of the VRRPv2 and VRRPv3 switching scenario, you can specify a standard for sending VRRP packets based on the actual network condition. The VRRPv2 standard is based on RFC 3768, while the VRRPv3 standard is based on RFC 5798.

Examples

The following example enables the IPv4 VRRP function on the port GigabitEthernet 0/1 of a router, sets the ID of the IPv4 VRRP group to 1, and configures IPv4 VRRP group 1 to use VRRPv3 to send multicast packets.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip address 10.0.1.1 255.255.255.0
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 ip 10.0.1.20
Hostname(config-if-GigabitEthernet 0/1)# vrrp 1 version 3
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

● **vrrp ip**