service-module ip redundancy through show vrrs summary

service-module ip redundancy

To link the primary HSRP interface status to that of the satellite interface, use the **service-module ip redundancy** command in satellite interface configuration mode. To remove the link between the primary HSRP interface status and the satellite interface status, use the **no** form of this command.

service-module ip redundancy *group-name*

no service-module ip redundancy *group-name*

Syntax Description

group-name	Name of the hot standby group. This name must match the hot standby group name configured for the primary HSRP interface, which is typically an Ethernet interface.

Command Default

HSRP is disabled.

Command Modes

Satellite interface configuration (config-if)

Command History

Release	Modification
12.3(14)T	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines

Use the **service-module ip redundancy** command only when you have two Cisco IP VSAT satellite WAN network modules (NM-1VSAT-GILAT) on separate HSRP-redundant routers that connect to the same outdoor unit (ODU).

This command enables the satellite interface to spoof the line protocol UP state.

Examples

The following example shows how to link the primary HSRP interface status to that of the satellite interface:

```
Router (config-if)# service-module ip redundancy grp-hsrp
```

Related Commands

Command	Description
standby ip	Activates HSRP.
standby name	Configures the name of the hot standby group.
standby preempt	Enables preemption on the router and optionally configures a preemption delay.
standby track	Configures an interface so that the hot standby priority changes based on the availability of other interfaces.

show glbp

To display Gateway Load Balancing Protocol (GLBP) information, use the **show glbp** command in privileged EXEC mode.

capability [*interface-type interface-number*]| [[*interface-type interface-number* [*group-number*] [*state*] **[brief] [detail] client-cache** [**age** *number*] [**forwarder** *number*]]| **mac-address** *address*| **[summary]**]

Syntax Description

interface-type interface-number	(Optional) Interface type and number for which output is displayed.
group-number	(Optional) GLBP group number in the range from 0 to 1023.
state	(Optional) State of the GLBP router, one of the following: **active**, **disabled**, **init**, **listen**, and **standby**.
brief	(Optional) Summarizes each virtual gateway or virtual forwarder with a single line of output.
detail	(Optional) Displays all the status of the GLBP router in detailed format. The available status are: **active**, **disabled**, **init**, **listen**, **speak**, and **standby**.
capability	(Optional) Displays the GLBP capability interfaces.
client-cache	(Optional) Displays the GLBP client cache.
age *number*	(Optional) Displays the client-cache age in the range from 0 to 1440.
forwarder *number*	(Optional) Displays the client forwarder in the range from 1 to 4.
mac-address *address*	(Optional) Displays the mac-address of the client.
summary	(Optional) Displays the summary of the GLBP client caches.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(14)S	This command was introduced.

Release	Modification
12.2(15)T	This command was integrated into Cisco IOS Release 12.2(15)T. The **client-cache** keyword was added.
12.3(2)T	The output was enhanced to display information about Message Digest 5 (MD5) authentication.
12.3(7)T	The output was enhanced to display information about assigned redundancy names to specified groups.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(31)SB2	This command was enhanced to display information about GLBP support of Stateful Switchover (SSO) mode.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
Cisco IOS XE Release 2.1	This command was integrated into Cisco IOS XE Release 2.1.
12.4(15)T	This command was modified. The **client-cache** keyword was added.
12.4(24)T	This command was modified. The **detail** keyword was added. The output was modified to hide configured passwords when MD5 key-string or text authentication is configured.
12.2(33)SXI1	This command was modified. The **client-cache** keyword was added. The output was modified to hide configured passwords when MD5 key-string or text authentication is configured.
12.2(33)SRE	The output was modified to hide configured passwords when MD5 key-string or text authentication is configured.

Usage Guidelines

Use the **show glbp** command to display information about GLBP groups on a router. The **brief** keyword displays a single line of information about each virtual gateway or virtual forwarder. The **client-cache** keyword displays the client cache details and the **capability** keyword displays all GLBP-capable interfaces.

Examples

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

```
Router# show glbp
FastEthernet0/0 - Group 10
  State is Active
    2 state changes, last state change 23:50:33
  Virtual IP address is 10.21.8.10
  Hello time 5 sec, hold time 18 sec
    Next hello sent in 4.300 secs
  Redirect time 600 sec, forwarder time-out 7200 sec
  Authentication MD5, key-string
  Preemption enabled, min delay 60 sec
  Active is local
  Standby is unknown
```

```
  Priority 254 (configured)
  Weighting 105 (configured 110), thresholds: lower 95, upper 105
    Track object 2 state Down decrement 5
  Load balancing: host-dependent
  There is 1 forwarder (1 active)
  Forwarder 1
    State is Active
      1 state change, last state change 23:50:15
    MAC address is 0007.b400.0101 (default)
    Owner ID is 0005.0050.6c08
    Redirection enabled
    Preemption enabled, min delay 60 sec
    Active is local, weighting 105
```

The following is sample output from the **show glbp** command with the **brief** keyword specified:

```
Router# show glbp brief
Interface   Grp  Fwd Pri State    Address         Active router   Standby router
Fa0/0       10   -   254 Active   10.21.8.10       local           unknown
Fa0/0       10   1   7   Active   0007.b400.0101   local           -
```

The following is sample output from the **show glbp** command that displays GLBP group 10:

```
Router# show glbp 10
FastEthernet0/0 - Group 10
  State is Active
    2 state changes, last state change 23:50:33
  Virtual IP address is 10.21.8.10
  Hello time 5 sec, hold time 18 sec
    Next hello sent in 4.300 secs
  Redirect time 600 sec, forwarder time-out 7200 sec
  Authentication MD5, key-string
  Preemption enabled, min delay 60 sec
  Active is local
  Standby is unknown
  Priority 254 (configured)
  Weighting 105 (configured 110), thresholds: lower 95, upper 105
    Track object 2 state Down decrement 5
  Load balancing: host-dependent
  There is 1 forwarder (1 active)
  Forwarder 1
    State is Active
      1 state change, last state change 23:50:15
    MAC address is 0007.b400.0101 (default)
    Owner ID is 0005.0050.6c08
    Redirection enabled
    Preemption enabled, min delay 60 sec
    Active is local, weighting 105
```

The following output shows that the redundancy name has been assigned to the “glbp1” group:

```
Router# show glbp ethernet0/1 1
Ethernet0/1 - Group 1
 State is Listen
   64 state changes, last state change 00:00:54
 Virtual IP address is 10.1.0.7
 Hello time 50 msec, hold time 200 msec
   Next hello sent in 0.030 secs
 Redirect time 600 sec, forwarder time-out 14400 sec
  Authentication text, string “authword”
 Preemption enabled, min delay 0 sec
 Active is 10.1.0.2, priority 105 (expires in 0.184 sec)
 Standby is 10.1.0.3, priority 100 (expires in 0.176 sec)
 Priority 96 (configured)
 Weighting 100 (configured 100), thresholds: lower 95, upper 100
   Track object 1 state Up decrement 10
 Load balancing: round-robin
 IP redundancy name is "glbp1"
  Group members:
   0004.4d83.4801 (10.0.0.0)
   0010.7b5a.fa41 (10.0.0.1)
   00d0.bbd3.bc21 (10.0.0.2) local
```

The following output shows GLBP support for SSO mode on an active RP:

```
Router# show glbp

Ethernet0/0 - Group 1
State is Standby
1 state change, last state change 00:00:20
Virtual IP address is 172.24.1.254
Hello time 3 sec, hold time 10 sec
Next hello sent in 0.232 secs
Redirect time 600 sec, forwarder time-out 14400 sec
Preemption disabled
Active is 172.24.1.2, priority 100 (expires in 7.472 sec)
Standby is local
Priority 100 (default)
Weighting 100 (default 100), thresholds: lower 1, upper 100
Load balancing: round-robin
Group members:
aabb.cc00.0100 (172.24.1.1) local
aabb.cc00.0200 (172.24.1.2)
There are 2 forwarders (1 active)
Forwarder 1
State is Listen
MAC address is 0007.b400.0101 (learnt)
Owner ID is aabb.cc00.0200
Time to live: 14397.472 sec (maximum 14400 sec)
Preemption enabled, min delay 30 sec
Active is 172.24.1.2 (primary), weighting 100 (expires in 9.540 sec)
Forwarder 2
State is Active
1 state change, last state change 00:00:28
MAC address is 0007.b400.0102 (default)
Owner ID is aabb.cc00.0100
Preemption enabled, min delay 30 sec
Active is local, weighting 100
```

The following output shows GLBP support for SSO mode on a standby RP:

```
RouterRP-standby# show glbp

Ethernet0/0 - Group 1
State is Init (standby RP, peer state is Standby)
Virtual IP address is 172.24.1.254
Hello time 3 sec, hold time 10 sec
Redirect time 600 sec, forwarder time-out 14400 sec
Preemption disabled
Active is unknown
Standby is unknown
Priority 100 (default)
Weighting 100 (default 100), thresholds: lower 1, upper 100
Load balancing: round-robin
Group members:
aabb.cc00.0100 (172.24.1.1) local
aabb.cc00.0200 (172.24.1.2)
There are 2 forwarders (0 active)
Forwarder 1
State is Init (standby RP, peer state is Listen)
MAC address is 0007.b400.0101 (learnt)
Owner ID is aabb.cc00.0200
Preemption enabled, min delay 30 sec
Active is unknown
Forwarder 2
State is Init (standby RP, peer state is Active)
MAC address is 0007.b400.0102 (default)
Owner ID is aabb.cc00.0100
Preemption enabled, min delay 30 sec
Active is unknown
```

GLBP support for Stateful Switchover (SSO) mode is enabled by default but may be disabled by the **no glbp sso** command. If GLBP support for SSO mode is disabled, the output of the **show glbp** command on the standby RP will display a warning:

```
RouterRP-standby# show glbp
Ethernet0/0 - Group 1
State is Init (GLBP SSO disabled) <------ GLBP SSO is disabled.
Virtual IP address is 172.24.1.254
Hello time 3 sec, hold time 10 sec
Redirect time 600 sec, forwarder time-out 14400 sec
Preemption disabled
Active is unknown
Standby is unknown
Priority 100 (default)
Weighting 100 (default 100), thresholds: lower 1, upper 100
Load balancing: round-robin
Group members:
aabb.cc00.0100 (172.24.1.1) local
There are 2 forwarders (0 active)
Forwarder 1
State is Init (GLBP SSO disabled)
MAC address is 0007.b400.0101 (learnt)
Owner ID is aabb.cc00.0200
Preemption enabled, min delay 30 sec
Active is unknown
Forwarder 2
State is Init (GLBP SSO disabled)
MAC address is 0007.b400.0102 (default)
Owner ID is aabb.cc00.0100
Preemption enabled, min delay 30 sec
Active is unknown
```

The table below describes the significant fields shown in the displays.

Table 1: show glbp Field Descriptions

Field	Description
FastEthernet0/0 - Group	Interface type and number and GLBP group number for the interface.

Field	Description
State is	State of the virtual gateway or virtual forwarder. For a virtual gateway, the state can be one of the following: • Active--The gateway is the active virtual gateway (AVG) and is responsible for responding to Address Resolution Protocol (ARP) requests for the virtual IP address. • Disabled--The virtual IP address has not been configured or learned yet, but another GLBP configuration exists. • Initial--The virtual IP address has been configured or learned, but virtual gateway configuration is not complete. An interface must be up and configured to route IP, and an interface IP address must be configured. • Listen--The virtual gateway is receiving hello packets and is ready to change to the "speak" state if the active or standby virtual gateway becomes unavailable. • Speak--The virtual gateway is attempting to become the active or standby virtual gateway. • Standby--The gateway is next in line to be the AVG.
	For a virtual forwarder, the state can be one of the following: • Active--The gateway is the active virtual forwarder (AVF) and is responsible for forwarding packets sent to the virtual forwarder MAC address. • Disabled--The virtual MAC address has not been assigned or learned. This is a transitory state because a virtual forwarder changing to a disabled state is deleted. • Initial--The virtual MAC address is known, but virtual forwarder configuration is not complete. An interface must be up and configured to route IP, an interface IP address must be configured, and the virtual IP address must be known. • Listen--The virtual forwarder is receiving hello packets and is ready to change to the "active" state if the AVF becomes unavailable.

Field	Description
Virtual IP address is	The virtual IP address of the GLBP group. All secondary virtual IP addresses are listed on separate lines. If one of the virtual IP addresses is a duplicate of an address configured for another device, it will be marked as “duplicate.” A duplicate address indicates that the router has failed to defend its ARP cache entry.
Hello time, hold time	The hello time is the time between hello packets (in seconds or milliseconds). The hold time is the time (in seconds or milliseconds) before other routers declare the active router to be down. All routers in a GLBP group use the hello- and hold-time values of the current AVG. If the locally configured values are different, the configured values appear in parentheses after the hello- and hold-time values.
Next hello sent in	The time until GLBP will send the next hello packet (in seconds or milliseconds).
Preemption	Whether GLBP gateway preemption is enabled. If enabled, the minimum delay is the time (in seconds) for which a higher-priority nonactive router will wait before preempting the lower-priority active router. This field is also displayed under the forwarder section where it indicates GLBP forwarder preemption.
Active is	The active state of the virtual gateway. The value can be “local,” “unknown,” or an IP address. The address (and the expiration date of the address) is the address of the current AVG. This field is also displayed under the forwarder section where it indicates the address of the current AVF.
Standby is	The standby state of the virtual gateway. The value can be “local,” “unknown,” or an IP address. The address (and the expiration date of the address) is the address of the standby gateway (the gateway that is next in line to be the AVG).
Weighting	The initial weighting value with lower and upper threshold values.
Track object	The list of objects that are being tracked and their corresponding states.

Field	Description
IP redundancy name is	The name of the GLBP group.

Related Commands

Command	Description
glbp ip	Enables GLBP.
glbp timers	Configures the time between hello messages and the time before other routers declare the active GLBP router to be down.
glbp weighting track	Specifies an object to be tracked that affects the weighting of a GLBP gateway.

show standby

To display Hot Standby Router Protocol (HSRP) information, use the **show standby** command in user EXEC or privileged EXEC mode.

show standby [*type number* [*group*]] [**all**| **brief**]

Syntax Description

type number	(Optional) Interface type and number for which output is displayed.
group	(Optional) Group number on the interface for which output is displayed.
all	(Optional) Displays information for groups that are learned or do not have the **standby ip** command configured.
brief	(Optional) A single line of output summarizes each standby group.

Command Modes

User EXEC (>) Privileged EXEC (#)

Command History

Release	Modification
10.0	This command was introduced.
12.2(8)T	The output for the command was made clearer and easier to understand.
12.3(2)T	The output was enhanced to display information about Message Digest 5 (MD5) authentication.
12.3(4)T	The output was enhanced to display information about HSRP version 2.
12.2(25)S	This command was integrated into Cisco IOS Release 12.2(25)S.
12.4(4)T	IPv6 support was added.
12.4(6)T	The output for this command was enhanced to display information about HSRP master and client groups.
12.4(9)T	The output for this command was enhanced to display information about HSRP group shutdown configuration.
12.4(11)T	The output for this command was enhanced to display information about HSRP Bidirectional Forwarding Detection (BFD) peering.

Release	Modification
12.2(33)SRB	This command was integrated into Cisco IOS Release 12.2(33)SRB.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
12.2(33)SXI	The output for this command was enhanced to display information about gratuitous ARP packets.
12.4(24)T	This command was modified. The output was modified to hide configured passwords when MD5 key-string or text authentication is configured.
12.2(33)SXI1	This command was modified. The output was modified to hide configured passwords when MD5 key-string or text authentication is configured.
Cisco IOS XE Release 2.1	This command was integrated into Cisco IOS XE Release 2.1.
Cisco IOS XE Release 2.4	This command was modified. The output was modified to hide configured passwords when MD5 key-string or text authentication is configured.
12.2(33)SRE	This command was modified. The output was modified to hide configured passwords when MD5 key-string or text authentication is configured.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.

Usage Guidelines

To specify a group, you must specify an interface type and number.

Examples

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

```
Router# show standby

Ethernet0/1 - Group 1
  State is Active
   2 state changes, last state change 00:30:59
  Virtual IP address is 10.1.0.20
   Secondary virtual IP address 10.1.0.21
  Active virtual MAC address is 0004.4d82.7981
   Local virtual MAC address is 0004.4d82.7981 (bia)
  Hello time 4 sec, hold time 12 sec
   Next hello sent in 1.412 secs
  Gratuitous ARP 14 sent, next in 7.412 secs
  Preemption enabled, min delay 50 sec, sync delay 40 sec
  Active router is local
  Standby router is 10.1.0.6, priority 75 (expires in 9.184 sec)
  Priority 95 (configured 120)
   Tracking 2 objects, 0 up
      Down Interface Ethernet0/2, pri 15
      Down Interface Ethernet0/3
Group name is “HSRP1” (cfgd)
Follow by groups:
    Et1/0.3 Grp 2 Active 10.0.0.254 0000.0c07.ac02 refresh 30 secs (next 19.666)
    Et1/0.4 Grp 2 Active 10.0.0.254 0000.0c07.ac02 refresh 30 secs (next 19.491)
  Group name is "HSRP1", advertisement interval is 34 sec
```

The following is sample output from the **show standby** command when HSRP version 2 is configured:

```
Router# show standby

Ethernet0/1 - Group 1 (version 2)
  State is Speak
  Virtual IP address is 10.21.0.10
  Active virtual MAC address is unknown
   Local virtual MAC address is 0000.0c9f.f001 (v2 default)
  Hello time 3 sec, hold time 10 sec
   Next hello sent in 1.804 secs
  Preemption enabled
  Active router is unknown
  Standby router is unknown
  Priority 20 (configured 20)
  Group name is "hsrp-Et0/1-1" (default)
Ethernet0/2 - Group 1
  State is Speak
  Virtual IP address is 10.22.0.10
  Active virtual MAC address is unknown
    Local virtual MAC address is 0000.0c07.ac01 (v1 default)
  Hello time 3 sec, hold time 10 sec
    Next hello sent in 1.804 secs
  Preemption disabled
  Active router is unknown
  Standby router is unknown
  Priority 90 (default 100)
    Track interface Serial2/0 state Down decrement 10
  Group name is "hsrp-Et0/2-1" (default)
```

The following is sample output from the **show standby** command with the **brief** keyword specified:

```
Router# show standby brief

Interface   Grp Prio P State    Active addr     Standby addr    Group addr
Et0         0   120    Init     10.0.0.1        unknown         10.0.0.12
```

The following is sample output from the **show standby** command when HSRP MD5 authentication is configured:

```
Router# show standby

Ethernet0/1 - Group 1
  State is Active
    5 state changes, last state change 00:17:27
  Virtual IP address is 10.21.0.10
  Active virtual MAC address is 0000.0c07.ac01
    Local virtual MAC address is 0000.0c07.ac01 (default)
  Hello time 3 sec, hold time 10 sec
    Next hello sent in 2.276 secs
  Authentication MD5, key-string, timeout 30 secs
  Preemption enabled
  Active router is local
  Standby router is unknown
  Priority 110 (configured 110)
  Group name is "hsrp-Et0/1-1" (default)
```

The following is sample output from the **show standby** command when HSRP group shutdown is configured:

```
Router# show standby

Ethernet0/0 - Group 1
State is Init (tracking shutdown)
3 state changes, last state change 00:30:59
Track object 100 state Up
Track object 101 state Down
Track object 103 state Up
```

The following is sample output from the **show standby** command when HSRP BFD peering is enabled:

```
Router# show standby

Ethernet0/0 - Group 2
  State is Listen
    2 state changes, last state change 01:18:18
  Virtual IP address is 10.0.0.1
  Active virtual MAC address is 0000.0c07.ac02
    Local virtual MAC address is 0000.0c07.ac02 (v1 default)
  Hello time 3 sec, hold time 10 sec
  Preemption enabled
  Active router is 10.0.0.250, priority 120 (expires in 9.396 sec)
  Standby router is 10.0.0.251, priority 110 (expires in 8.672 sec)
    BFD enabled
  Priority 90 (configured 90)
  Group name is "hsrp-Et0/0-1" (default)
```

The following is sample output from the **show standby** command used to display the state of the standby RP:

```
Router# show standby

GigabitEthernet3/25 - Group 1
State is Init (standby RP, peer state is Active)
Virtual IP address is 10.0.0.1
Active virtual MAC address is unknown
Local virtual MAC address is 0000.0c07.ac01 (v1 default)
Hello time 3 sec, hold time 10 sec
Preemption disabled
Active router is unknown
Standby router is unknown
Priority 100 (default 100)
Group name is "hsrp-Gi3/25-1" (default)
```

The table below describes the significant fields shown in the displays.

Table 2: show standby Field Descriptions

Field	Description
Ethernet - Group	Interface type and number and Hot Standby group number for the interface.

Field	Description
State is	State of local router; can be one of the following: • Active--Indicates the current Hot Standby router. • Standby--Indicates the router next in line to be the Hot Standby router. • Speak--Router is sending packets to claim the active or standby role. • Listen--Router is neither in the active nor standby state, but if no messages are received from the active or standby router, it will start to speak. • Init or Disabled--Router is not yet ready or able to participate in HSRP, possibly because the associated interface is not up. HSRP groups configured on other routers on the network that are learned via snooping are displayed as being in the Init state. Locally configured groups with an interface that is down or groups without a specified interface IP address appear in the Init state. For these cases, the Active addr and Standby addr fields will show "unknown." The state is listed as disabled in the fields when the **standby ip** command has not been specified. • Init (tracking shutdown)--HSRP groups appear in the Init state when HSRP group shutdown has been configured and a tracked object goes down.
Virtual IP address is, Secondary virtual IP addresses	All secondary virtual IP addresses are listed on separate lines. If one of the virtual IP addresses is a duplicate of an address configured for another device, it will be marked as "duplicate." A duplicate address indicates that the router has failed to defend its ARP (Address Resolution Protocol) cache entry.
Active virtual MAC address	Virtual MAC address being used by the current active router.
Local virtual MAC address	Virtual MAC address that would be used if this router became the active router. The origin of this address (displayed in parentheses) can be "default," "bia," (burned-in address) or "confgd" (configured).

Field	Description
Hello time, hold time	The hello time is the time between hello packets (in seconds) based on the command. The holdtime is the time (in seconds) before other routers declare the active or standby router to be down, based on the **standby timers** command. All routers in an HSRP group use the hello and hold- time values of the current active router. If the locally configured values are different, the variance appears in parentheses after the hello time and hold-time values.
Next hello sent in	Time in which the Cisco IOS software will send the next hello packet (in hours:minutes:seconds).
Gratuitous ARP 14 sent, next in 7.412 secs	Number of the gratuitous ARP packet HSRP has sent and the time in seconds when HSRP will send the next gratuitous ARP packet. This output appears only when HSRP sends gratuitous ARP packets.
Authentication	Authentication type configured based on the **standby authentication** command.
key-string	Indicates a key string is used for authentication. Configured key chains are not displayed.
timeout	Duration (in seconds) that HSRP will accept message digests based on both the old and new keys.
Preemption enabled, sync delay	Indicates whether preemption is enabled. If enabled, the minimum delay is the time a higher-priority nonactive router will wait before preempting the lower-priority active router. The sync delay is the maximum time a group will wait to synchronize with the IP redundancy clients.
Active router is	Value can be “local,” “unknown,” or an IP address. Address (and the expiration date of the address) of the current active Hot Standby router.
Standby router is	Value can be “local,” “unknown,” or an IP address. Address (and the expiration date of the address) of the “standby” router (the router that is next in line to be the Hot Standby router).
BFD enabled	Indicates that BFD peering is enabled on the router.
expires in	Time (in hours:minutes:seconds) in which the standby router will no longer be the standby router if the local router receives no hello packets from it.

Field	Description
Tracking	List of interfaces that are being tracked and their corresponding states. Based on the **standby track** command.
Group name is	The name of the HSRP group.
Follow by groups:	Indicates the client HSRP groups that have been configured to follow this HSRP group.
P	Indicates that the router is configured to preempt.

Related Commands

Command	Description
standby authentication	Configures an authentication string for the HSRP.
standby ip	Activates the HSRP.
standby mac-address	Specifies the virtual MAC address for the virtual router.
standby mac-refresh	Refreshes the MAC cache on the switch by periodically sending packets from the virtual MAC address.
standby preempt	Configures HSRP preemption and preemption delay.
standby priority	Configures Hot Standby priority of potential standby routers.
standby timers	Configures the time between hello messages and the time before other routers declare the active Hot Standby or standby router to be down.
standby track	Configures an interface so that the Hot Standby priority changes based on the availability of other interfaces.
standby use-bias	Configures HSRP to use the BIA of the interface as its virtual MAC address, instead of the preassigned MAC address (on Ethernet and FDDI) or the functional address (on Token Ring).

show standby arp gratuitous

To display the number and configured interval of gratuitous Address Resolution Protocol (ARP) packets sent by Hot Standby Router Protocol (HSRP), use the **show standby arp gratuitous** command in user EXEC or privileged EXEC configuration mode.

show standby arp gratuitous [*type number*]

Syntax Description

type number	(Optional) Interface type and number for which output is displayed.

Command Default

The number of user-configured gratuitous ARP packets is not displayed.

Command Modes

User EXEC (>) Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SXI	This command was introduced.

Usage Guidelines

This command displays the interface to which HSRP sends gratuitous ARP packets, the interval (in seconds) and the number. Gratuitous ARP packets are sent only when an HSRP group transitions to the Active state.

Examples

The following sample output displays information about HSRP gratuitous ARP packets:

```
Router# show standby arp gratuitous

HSRP Gratuitous ARP
Interface   Interval   Count
Ethernet0/0 3          2
```

Related Commands

Command	Description
debug standby events arp	Displays events related to HSRP.
standby arp gratuitous	Configures the number of gratuitous ARP packets sent by an active HSRP group, and how often they are sent.

Command	Description
standby send arp	Configures HSRP to check that all ARP entries for active HSRP addresses are correct prior to sending gratuitous ARP packets.

show standby capability

To display the limitation on how many virtual MAC addresses that some interfaces can listen to, use the **show standby capability** command in user EXEC or privileged EXEC mode.

show standby capability [*type number*]

Syntax Description

type number	(Optional) Interface type and number for which output is displayed.

Command Modes

User EXEC (>) Privileged EXEC (#)

Command History

Release	Modification
12.2	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines

HSRP allows up to 256 groups to be configured on each interface, but it is possible that the MAC address filter of the interface does not support that many entries. For example, Versatile Interface Processor (VIP) interfaces only support 32 MAC addresses in their MAC address filter. If more HSRP groups are created than there are address filter entries, then it is likely that the router will stop listening to packets sent to the MAC address of an active HSRP group.

Examples

The following is sample output from the **show standby capability** command:

```
Router# show standby capability

7206VXR * indicates hardware may support HSRP
                                                    |
Interface          Type                        H  Potential Max Groups
FastEthernet0/0    18  DEC21140A               *  256  (0x60194B00,
0x60194BE8)
FastEthernet1/0    18  DEC21140A               *  256  (0x60194B00,
0x60194BE8)
Ethernet2/0        61  AmdP2                   *  256  (0x601A252C,
0x601A25E4)
Ethernet2/1        61  AmdP2                   *  256  (0x601A252C,
0x601A25E4)
Ethernet2/2        61  AmdP2                   *  256  (0x601A252C,
0x601A25E4)
Ethernet2/3        61  AmdP2                   *  256  (0x601A252C,
```

```
0x601A25E4)
Ethernet2/4        61  AmdP2                *  256  (0x601A252C,
0x601A25E4)
Ethernet2/5        61  AmdP2                *  256  (0x601A252C,
0x601A25E4)
Ethernet2/6        61  AmdP2                *  256  (0x601A252C,
0x601A25E4)
Ethernet2/7        61  AmdP2                *  256  (0x601A252C,
0x601A25E4)
ATM3/0             74  ENHANCED ATM PA      *  256  LAN emulation
TokenRing4/0       66  HAWKEYE              *  3    HSRP TR functional
addresses (0x6076A590)
TokenRing4/1       66  HAWKEYE              *  3    HSRP TR functional
addresses (0x6076A590)
TokenRing4/2       66  HAWKEYE              *  3    HSRP TR functional
addresses (0x6076A590)
TokenRing4/3       66  HAWKEYE              *  3    HSRP TR functional
addresses (0x6076A590)
Serial5/0          67  M4T                     -
Serial5/1          67  M4T                     -
Serial5/2          67  M4T                     -
Serial5/3          67  M4T                     -
FastEthernet6/0    18  DEC21140A            *  256  (0x60194B00,
0x60194BE8)
VoIP-Null0          102 VoIP-Null                -
```

The table below describes the significant fields in the display.

Table 3: show standby capability Field Descriptions

Field	Description
Interface	Interface type and number for the interface.
Type	Hardware type.
*	Indicates hardware may support HSRP.
Potential Max Groups	An estimate of the number of HSRP groups that a MAC address filter can process for an interface.

show standby delay

To display Hot Standby Router Protocol (HSRP) information about delay periods, use the **show standby delay** command in user EXEC or privileged EXEC mode.

show standby delay [*type number*]

Syntax Description

type number	(Optional) Interface type and number for which output is displayed.

Command Modes

User EXEC (>) Privileged EXEC (#)

Command History

Release	Modification
12.2	This command was introduced.
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was extended to Cisco IOS Release 12.2(17d)SXB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Examples

The following is sample output from the **show standby delay** command:

```
Router# show standby delay

 Interface          Minimum Reload
 Ethernet0/3        1       5
```

The table below describes the significant fields shown in the display.

Table 4: show standby delay Field Descriptions

Field	Description
Interface	Interface type and number.
Minimum	Minimum time (in seconds) to delay HSRP group initialization after an interface comes up.
Reload	Time (in seconds) to delay after the router has reloaded.

Related Commands

Command	Description
standby delay minimum reload	Delays the initialization of HSRP groups.

show standby internal

To display Hot Standby Routing Protocol (HSRP) internal flags and conditions, use the **show standby internal** command in user EXEC or privileged EXEC mode.

show standby internal [*interface-type interface-number* [*group*| **summary [all]**]| **summary**]

Syntax Description

interface-type interface-number	(Optional) Interface type and number for which output is displayed.
group	(Optional) Group number on the interface for which output is displayed. The range is 0 to 255.
summary	(Optional) Displays the number of configured and learned HSRP groups in various states on the interface.
all	(Optional) Displays HSRP groups on all subinterfaces if the specified interface is the main interface.

Command Modes

User EXEC (>) Privileged EXEC (#)

Command History

Release	Modification
12.2	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.
12.2(33)SXI2	This command was modified. The *group* argument and the **summary** and **all** keywords were added.
12.2(33)SRE	This command was modified. The *group* argument and the **summary** and **all** keywords were added.
15.0(1)M	This command was modified. The *group* argument and the **summary** and **all** keywords were added.

Usage Guidelines

The **show standby internal** *interface-type interface-number* **summary** command applies to both the main interface and subinterfaces. When the command is used for the main interface the display output does not include groups on subinterfaces. This command displays all configured and learned HSRP groups in various states on the specified interface or subinterface.

The **show standby internal** *interface-type interface-number* **summary all** command applies only to the main interface, not to subinterfaces. It displays the total number of configured and learned HSRP groups in various states, including groups on all subinterfaces under the main interface.

The **show standby internal summary** command displays all configured and learned HSRP groups in various states on all interfaces.

Examples

The following example shows a configuration example and sample output from the **show standby internal** command for the configuration. The output shows internal flags and hardware and software information for Ethernet interface 2/0. The output shows that HSRP group 1 is configured for priority and preemption, and that the **standby timers** and **standby-use bia** commands have been configured.

```
Router# show standby internal

interface Ethernet2/0
 ip address 10.0.0.254 255.255.0.0
 standby use-bia
 standby version 2
 standby 1 ip 10.0.0.1
 standby 1 timers 2 6
 standby 1 priority 110
 standby 1 preempt

Router# show standby internal

Global           Confg: 0000
Et2/0 If hw      AmdP2, State 0x210040
Et2/0 If hw      Confg: 0001, USEBIA
Et2/0 If hw      Flags: 0000
Et2/0 If sw      Confg: 0040, VERSION
Et2/0 If sw      Flags: 0001, USEBIA
Et2/0 Grp 1      Confg: 0072, IP_PRI, PRIORITY, PREEMPT, TIMERS
Et2/0 Grp 1      Flags: 0000
```

The following sample output from the **show standby internal ethernet0/1 summary all** command shows 400 active configured groups and no active learned groups for Ethernet interface 0/1:

```
Router# show standby internal ethernet 0/1 summary all

             Disable  Init     Learn    Listen   Speak    Standby  Active
Ethernet0/1
Configured     0        0        0        0        0        0        400
Learnt         0        0        0        0        0        0        0
```

The table below describes the significant fields shown in the display.

Table 5: show standby internal summary all Field Description

Field	Description
Disable	Number of HSRP groups in the disabled state. An HSRP group that is in the disabled state is not yet ready or able to participate in HSRP. All learned groups are always in the disabled state.

Field	Description
Init	Number of HSRP groups in the initial state. Locally configured groups with an interface that is down or groups without a specified interface IP address appear in the Init state.
Learn	Number of HSRP groups in the learned state. A group that is learned is neither in the active nor standby state, nor does it have enough information to attempt to claim the active or standby roles.
Listen	Number of HSRP groups in the listen state. A router in the listen state is neither in the active nor standby state, but if no messages are received from the active or standby router, it will start to speak.
Speak	Number of HSRP groups that are sending packets to claim the active or standby role.
Standby	Number of standby HSRP groups.
Active	Number of active HSRP groups.

Related Commands

Command	Description
show standby	Displays HSRP information.

show standby neighbors

To display information about Hot Standby Router Protocol (HSRP) peer routers on an interface, use the **show standby neighbors** command in privileged EXEC mode.

show standby neighbors [*interface-type interface-number*]

Syntax Description

interface-type interface-number	(Optional) Interface type and number for which output is displayed.

Command Default

HSRP neighbor information is displayed for all interfaces.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.4(11)T	This command was introduced.

Usage Guidelines

Use this command to display information about HSRP peer neighbors. This command displays the HSRP groups for which each neighbor is acting as the active and standby router and whether Bidirectional Forwarding Detection (BFD) peering is enabled for each neighbor.

Examples

The following example displays the HSRP neighbors on Ethernet interface 0/0. Neighbor 10.0.0.250 is active for group 2 and standby for groups 1 and 8, and is registered with BFD:

```
Router# show standby neighbors Ethernet0/0

HSRP neighbors on Ethernet0/0
  10.0.0.250
    Active groups: 2
    Standby groups: 1, 8
    BFD enabled
  10.0.0.251
    Active groups: 5, 8
    Standby groups: 2
    BFD enabled
  10.0.0.253
    No Active groups
    No Standby groups
    BFD enabled
```

The following example displays information for all HSRP neighbors:

```
Router# show standby neighbors

HSRP neighbors on FastEthernet2/0
```

```
  10.0.0.2
    No active groups
    Standby groups: 1
    BFD enabled
HSRP neighbors on FastEthernet2/0
  10.0.0.1
    Active groups: 1
    No standby groups
    BFD enabled
```

The table below describes the significant fields shown in the displays.

Table 6: show standby neighbors Field Descriptions

Field	Description
Active groups	HSRP groups for which an interface is acting as the active peer.
Standby groups	HSRP groups for which an interface is acting as the standby peer.
BFD enabled	Indicates that HSRP BFD peering is enabled.

Related Commands

Command	Description
bfd	Sets the baseline BFD session parameters on an interface.
debug standby events neighbor	Displays HSRP neighbor events.
show bfd neighbor	Displays a line-by-line listing of existing BFD adjacencies.
show standby	Displays information about HSRP.
standby bfd	Reenables HSRP BFD peering for a specified interface if it has been disabled.
standby ip	Activates HSRP.

show standby redirect

To display Internet Control Message Protocol (ICMP) redirect information on interfaces configured with the Hot Standby Router Protocol (HSRP), use the **show standby redirect** command in user EXEC or privileged EXEC mode.

show standby redirect [*ip-address*| *interface-type interface-number* [**active**| **passive**| **timers**]]

Syntax Description

ip-address	(Optional) Router IP address.
interface-type interface-number	(Optional) Interface type and number for which output is displayed.
active	(Optional) Active HSRP routers on the subnet.
passive	(Optional) Passive HSRP routers on the subnet.
timers	(Optional) HSRP ICMP redirect timers.

Command Modes

User EXEC (>) Privileged EXEC (#)

Command History

Release	Modification
12.2	This command was introduced.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Examples

The following is sample output from the **show standby direct** command with no optional keywords:

```
Router# show standby redirect

Interface          Redirects Unknown   Adv      Holddown
Ethernet0/2        enabled   enabled   30       180
Ethernet0/3        enabled   disabled  30       180
Active          Hits   Interface          Group Virtual IP      Virtual MAC
10.19.0.7       0      Ethernet0/2        3     10.19.0.13      0000.0c07.ac03
local           0      Ethernet0/3        1     10.20.0.11      0000.0c07.ac01
local           0      Ethernet0/3        2     10.20.0.12      0000.0c07.ac02
Passive         Hits   Interface          Expires in
10.19.0.6       0      Ethernet0/2        151.800
```

The table below describes the significant fields in the display.

Table 7: show standby redirects Field Descriptions

Field	Description
Interface	Interface type and number for the interface.
Redirects	Indicates whether redirects are enabled or disabled on the interface.
Unknown	Indicates whether redirects to an unknown router are enabled or disabled on the interface.
Adv	Number indicating the passive router advertisement interval in seconds.
Holddown	Number indicating the passive router hold interval in seconds.
Active	Active HSRP routers on the subnet.
Hits	Number of address translations required for ICMP information.
Interface	Interface type and number for the interface on the active router.
Group	Hot standby group number.
Virtual IP	Virtual IP address of the active HSRP router.
Virtual MAC	Virtual MAC address of the active HSRP router.
Passive	Passive HSRP routers on the subnet.
Hits	Number of address translations required for ICMP information.
Interface	Interface type and number for the interface on the passive router.
Expires in	Time in seconds for a virtual IP to expire and the holddown time to apply for filtering routes to the standby router.

The following is sample output from the **show standby redirect** command with a specific interface Ethernet 0/3:

```
Router# show standby redirect e0/3

Interface          Redirects Unknown   Adv      Holddown
Ethernet0/3        enabled   disabled  30       180
```

```
Active          Hits   Interface          Group Virtual IP      Virtual MAC
local           0      Ethernet0/3        1     10.20.0.11      0000.0c07.ac01
local           0      Ethernet0/3        2     10.20.0.12      0000.0c07.ac02
```

The following is sample output from the **show standby redirect** command showing all active routers on interface Ethernet 0/3:

```
Router# show standby redirect e0/3 active

Active          Hits   Interface          Group Virtual IP      Virtual MAC
local           0      Ethernet0/3        1     10.20.0.11      0000.0c07.ac01
local           0      Ethernet0/3        2     10.20.0.12      0000.0c07.ac02
```

The following is sample output from the **show standby redirect** *ip-address* command, where the IP address is the real IP address of the router:

```
Router# show standby redirect 10.19.0.7

Active          Hits   Interface          Group Virtual IP      Virtual MAC
10.19.0.7       0      Ethernet0/2        3     10.19.0.13      0000.0c07.ac03
```

Related Commands

Command	Description
show standby	Displays the HSRP information.
standby redirects	Enables ICMP redirect messages to be sent when HSRP is configured on an interface.

show vrrp

To display the status of configured Virtual Router Redundancy Protocol (VRRP) groups on a device, use the **show vrrp** command in privileged EXEC mode.

show vrrp *group number* [**Ethernet| ipv4| ipv6| all| brief| detail| statistics**]

Syntax Description

group number	VRRP group number. The range is from 1 to 255.
Ethernet	(Optional) Displays Ethernet information for IEEE 802.3.
ipv4	(Optional) Displays information about IPv4 groups.
ipv6	(Optional) Displays information about IPv6 groups.
all	(Optional) Displays information about all VRRP groups, including groups in a disabled state.
brief	(Optional) Displays a summary view of the VRRP group information.
detail	(Optional) Displays information about all VRRP groups, including statistical information.
statistics	(Optional) Displays statistical information about the VRRP groups.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.0(18)ST	This command was introduced.
12.0(22)S	This command was integrated into Cisco IOS Release 12.0(22)S.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.
12.3(2)T	This command was enhanced to display the state of a tracked object.
12.3(14)T	This command was enhanced to display message digest algorithm 5 (MD5) authentication for a VRRP using text strings, key chains, or key strings.

Release	Modification
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(31)SB2	This command was integrated into Cisco IOS Release 12.2(31)SB2.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.
12.2(33)SRC	This command was enhanced to display synchronized state information from the active Route Processor (RP).
Cisco IOS XE Release 2.1	This command was integrated into Cisco IOS XE Release 2.1.
12.4(24)T	This command was modified. The output was modified to hide configured passwords when MD5 key-string or text authentication is configured.
Cisco IOS XE Release 2.6	This command was modified. The output was modified to display information about configured Virtual Router Redundancy Service (VRRS) names.
15.3(3)M	This command was modified. The output was modified to display information about a tracking object.

Usage Guidelines

If no group is specified, the status for all groups is displayed.

Examples

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

```
Device# show vrrp

Ethernet1/0 - Group 1
State is Master
Virtual IP address is 10.2.0.10
Virtual MAC address is 0000.5e00.0101
Advertisement interval is 3.000 sec
Preemption is enabled
 min delay is 0.000 sec
Priority 100
 Track object 1 state down decrement 15
Master Router is 10.2.0.1 (local), priority is 100
Master Advertisement interval is 3.000 sec
Master Down interval is 9.609 sec
Ethernet1/0 - Group 2
State is Master
Virtual IP address is 10.0.0.20
Virtual MAC address is 0000.5e00.0102
Advertisement interval is 1.000 sec
Preemption is enabled
 min delay is 0.000 sec
Priority 95
Master Router is 10.0.0.1 (local), priority is 95
Master Advertisement interval is 1.000 sec
Master Down interval is 3.628 sec
```

The following is sample output from the **show vrrp** command, displaying peer RP state information:

```
Device# show vrrp

Ethernet0/0 - Group 1
  State is Init (standby RP, peer state is Master)
  Virtual IP address is 172.24.1.1
  Virtual MAC address is 0000.5e00.0101
  Advertisement interval is 1.000 sec
  Preemption enabled
  Priority is 255
  Master Router is 172.24.1.1 (local), priority is 255
  Master Advertisement interval is 1.000 sec
  Master Down interval is 3.003 sec
```

The following sample output displays information about a configured VRRS group name:

```
Device# show vrrp

 GigabitEthernet0/0/0 - Group 1
State is Master
Virtual IP address is 10.0.0.7
Virtual MAC address is 0000.5e00.0101
Advertisement interval is 1.000 sec
Preemption enabled
Priority is 100
VRRS Group name CLUSTER1 ! Configured VRRS Group Name
Master Router is 10.0.0.1 (local), priority is 100
Master Advertisement interval is 1.000 sec
Master Down interval is 3.609 sec
```

The following is sample output from the **show vrrp** command when an object is being tracked:

```
Device# show vrrp

Ethernet0/0 - Group 1 - Address-Family IPv4
  State is BACKUP
  State duration 1 mins 41.856 secs
  Virtual IP address is 172.24.1.253
  Virtual MAC address is 0000.5E00.0101
  Advertisement interval is 1000 msec
  Preemption enabled
  Priority is 80 (configured 100)
    Track object 1 state Down decrement 20
  Master Router is 172.24.1.2, priority is 100
  Master Advertisement interval is 1000 msec (learned)
  Master Down interval is 3609 msec (expires in 3297 msec)
```

The table below describes the significant fields shown in the displays.

Table 8: show vrrp Field Descriptions

Field	Description
Ethernet1/0 - Group	Interface type and number, and VRRP group number.
State is	Role this interface plays within VRRP (master or backup).

Field	Description
Advertisement interval is	Interval at which the device will send VRRP advertisements when it is the master virtual device. This value is configured with the **vrrp timers advertise** command.
Priority	Priority of the interface.
Track object	Object number representing the object to be tracked.
state	State value (up or down) of the object being tracked.
decrement	Amount by which the priority of the device is decremented (or incremented) when the tracked object goes down (or comes back up).
Master Router is	IP address of the current master virtual device.
priority is	Priority of the current master virtual device.
Master Advertisement interval is	Advertisement interval, in seconds, of the master virtual device.
Master Down interval is	Calculated time, in seconds, that the master virtual device can be down before the backup virtual device takes over.

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

```
Device# show vrrp brief

Interface          Grp  A-F Pri  Time Own Pre State   Master addr/Group addr
  Et1/0              1 IPv4 150     0  N   Y  MASTER  10.0.0.1(local) 10.0.0.10
  Et1/0              1 IPv6 100     0  N   Y  INIT    AF-UNDEFINED no address
  Et1/0              6 IPv6 150     0  N   Y  MASTER  FE80::1(local) FE80::100
```

The table below describes the significant fields shown in the display.

Table 9: show vrrp brief Field Descriptions

Field	Description
Interface	Interface type and number.
Grp	VRRP group to which this interface belongs.
Pri	VRRP priority number for this group.
Time	Calculated time that the master virtual device can be down before the backup virtual device takes over.

Field	Description
Own	IP address owner.
Pre	Preemption status. Y indicates that preemption is enabled. If this field is empty, preemption is disabled.
State	Role this interface plays within VRRP (master or backup).
Master addr	IP address of the master virtual device.
Group addr	IP address of the virtual device.

Related Commands

Command	Description
fhrp vrrp version v3	Enables VRRPv3 and VRRS configuration on a device.

show vrrp interface

To display the Virtual Router Redundancy Protocol (VRRP) groups and their status on a specified interface, use the **show vrrp interface** command in user EXEC or privileged EXEC mode.

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

Syntax Description

type	Interface type.
number	Interface number.
brief	(Optional) Provides a summary view of the group information.

Command Modes

User EXEC (>) Privileged EXEC (#)

Command History

Release	Modification
12.0(18)ST	This command was introduced.
12.0(22)S	This command was integrated into Cisco IOS Release 12.0(22)S.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(31)SB2	This command was integrated into Cisco IOS Release 12.2(31)SB2.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.
Cisco IOS XE Release 2.1	This command was integrated into Cisco IOS XE Release 2.1.
12.4(24)T	This command was modified. The output was modified to hide configured passwords when MD5 key-string or text authentication is configured.

Examples

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

```
Router# show vrrp interface ethernet 1/0
```

```
Ethernet1/0 - Group 1
State is Master
Virtual IP address is 10.2.0.10
Virtual MAC address is 0000.5e00.0101
Advertisement interval is 3.000 sec
Preemption enabled, delay min 4 secs
Priority is 100
Master Router is 10.2.0.1 (local), priority is 100
Master Advertisement interval is 3.000 sec
Master Down interval is 9.609 sec
Ethernet1/0 - Group 2
State is Master
Virtual IP address is 10.0.0.20
Virtual MAC address is 0000.5e00.0102
Advertisement interval is 1.000 sec
Preemption enabled, delay min 2 sec
Priority is 95
Authentication MD5, key-string
Master Router is 10.0.0.1 (local), priority is 95
Master Advertisement interval is 1.000 sec
Master Down interval is 3.628 sec
```

The table below describes the significant fields shown in the display.

Table 10: show vrrp interface Field Descriptions

Field	Description
Ethernet1/0 - Group 1	Interface type and number, and VRRP group number.
State is	Role this interface plays within VRRP (master or backup).
Virtual IP address is	Virtual IP address for this group.
Virtual MAC is	Virtual MAC address for this group.
Advertisement interval is	Interval at which the router will send VRRP advertisements when it is the master virtual router. This value is configured with the **vrrp timers advertise** command.
Preemption	Preemption is either enabled or disabled.
delay min	If preemption is enabled, delay min is the minimum time (in seconds) that a router will wait before preempting the current master router. This field is displayed only if the delay is set at greater than 0 seconds.
Authentication MD5, key-string	The currently configured authentication mechanism for this group. Possible values for this field include “MD5” for Message Digest 5 encryption, as shown in the example above. Other messages not displayed in the example include “text, string “‘my_secret_password’” for plain text and “key-chain ‘the_chain_i’m_looking_at’.”

Field	Description
Priority is 100	Priority of this group on this interface.
Master Router is 10.2.0.1 (local)	IP address of the current master virtual router.
Priority is 100	Priority of the current master router.
Master Advertisement interval	Advertisement interval of the master virtual router.
Master Down interval	Calculated time that the master virtual router can be down before the backup virtual router takes over.

Related Commands

Command	Description
vrrp ip	Enables VRRP and identifies the IP address of the virtual router.
vrrp timers advertise	Configures the interval between successive advertisements by the master virtual router in a VRRP group.

show vrrs

To display information associated with Virtual Router Redundancy Service (VRRS), use the **show vrrs** command in privileged EXEC mode.

show vrrs {**client** [*vrrs-client-name*]| **pathway** [**Ethernet** *number*]| **server** [**GLBP** [*vrrs-server-name*]| **HSRP** [*vrrs-server-name*]| **VRRP** [*vrrs-server-name*]]| **tag** [*vrrs-tag-name*]}

Syntax Description

client *vrrs-client-name*	Displays information about the VRRS client. Optionally, you can specify the VRRS client name.
pathway	Displays information about the VRRS pathway.
Ethernet *number*	(Optional) Displays information about the ethernet interface used for the VRRS pathway.
server	Displays information about the VRRS server.
GLBP	(Optional) Displays information about the Group Load Balancing Protocol (GLBP) server.
HSRP	(Optional) Displays information about the Hot Standby Redundancy Protocol (HSRP) server.
VRRP	(Optional) Displays information about the Virtual Router Redundancy Protocol (VRRP) server.
vrrs-server-name	(Optional) Specifies the VRRS server name.
tag *vrrs-tag-name*	Displays information about the VRRS tag. Optionally, you can specify the VRRS tag name.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
15.3(1)S	This command was introduced.
Cisco IOS XE Release 3.8S	This command was introduced.

Usage Guidelines

You must configure the VRRS pathway by defining the First Hop Redundancy Protocol (FHRP) groups and configuring the interfaces that require redundant virtual gateway.

Examples

The following is sample output from the **show vrrs** command with the **pathway** keyword for an “active” pathway with tag name “group1” and VRRP in master state on the VLAN interface:

```
  Device# show vrrs pathway

  Pathway ["group1"@Vlan42]
  State is ACTIVE [VRRS push "ACTIVE"]
  Virtual MAC is fe24.fe24.fe24 [Active] (0)
  Address-family is v4
  Options: Default Pathway=0, Owner Mode=0, Accept-Mode=1, Configured vMAC=1
  Evaluation: No Shut=1, Connected=1, OIR=1, L2 Ready=1, L3 Ready=1, vMAC Ready=1, vIP
Ready=1
  Virtual Address List: 192.168.42.254
```

The following is sample output from the **show vrrs** command with the **pathway** keyword for a “not ready” pathway with tag name “group1” and VRRP in shutdown state on the ethernet 0/1 interface:

```
  Device# show vrrs pathway

  Pathway ["group1"@Et0/1]
  State is NOT READY [VRRS push "INIT"]
  Virtual MAC is 0101.0101.0101 [Reserved] (0)
  Address-family is v4
  Options: Default Pathway=0, Owner Mode=0, Accept-Mode=1, Configured vMAC=1
  Evaluation: No Shut=1, Connected=1, OIR=1, L2 Ready=1, L3 Ready=1, vMAC Ready=1, vIP
Ready=1
  Virtual Address List: 192.168.42.254
```

The following is sample output from the **show vrrs** command with the **pathway** keyword for a “inactive” pathway with tag name “group1” and VRRP in backup state on the ethernet 0/1 interface:

```
  Device# show vrrs pathway

  Pathway ["group1"@Et0/1]
  State is INACTIVE [VRRS push "BACKUP"]
  Virtual MAC is 0101.0101.0101 [Reserved] (0)
  Address-family is v4
  Options: Default Pathway=0, Owner Mode=0, Accept-Mode=1, Configured vMAC=1
  Evaluation: No Shut=1, Connected=1, OIR=1, L2 Ready=1, L3 Ready=1, vMAC Ready=1, vIP
Ready=1
  Virtual Address List: 192.168.42.254
```

The following is sample output from the **show vrrs** command with the **server** keyword with a tag name “group1”:

```
  Device# show vrrs server

  Server Name: vrrpVlan40
  Address Family: IPv4
  Interface: Ethernet0/0
  State: ACTIVE
  vMAC: 0000.5E00.0101
  vIP Address: 172.16.1.254
  Tags Connected:
  Tag Name group1
```

The table below describes the significant fields shown in the displays.

Field	Description
Pathway	
State	
Virtual MAC	
Address-family	
Options	
Default Pathway	
Owner Mode	
Accept-Mode	
Configured vMAC	
Evaluation	
No Shut	
Connected	
OIR	
L2 Ready	
L3 Ready	
vMAC Ready	
vIP Ready	
Virtual Address List	
Interface	
vMAC	
vIP Address	
Tags Connected	

Related Commands

Command	Description
show vrrs clients	Displays a list of VRRS clients.
show vrrs group	Displays information about VRRS groups.
show vrrs summary	Displays a summary of all VRRS groups.

show vrrs clients

To display a list of Virtual Router Redundancy Service (VRRS) clients, use the **show vrrs clients** command in user EXEC or privileged EXEC mode.

show vrrs clients

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC (#) User EXEC (>)

Command History

Release	Modification
Cisco IOS XE Release 2.6	This command was introduced.

Usage Guidelines

Use the **show vrrs clients** command to display a list of VRRS clients currently active on the router. The display contains the client IDs, client priority, whether the client is interested in all VRRS groups, and the client name.

The client ID is a dynamic integer value assigned to the client when it registers with VRRS. If the client ID for a particular client is different between two versions of a Cisco IOS XE image, it means there is a change in initialization order in the two images.

The client priority is a priority that the client chooses during registration with VRRS. The client priority dictates the order in which clients receive server notifications.

Examples

The following example displays a list VRRS clients:

```
Router# show vrrs clients

ID  Priority  All-groups  Name
------------------------------
1   High      No          VRRS-Plugins
2   Low       Yes         VRRS-Accounting
3   Normal    No          PPPOE-VRRS-CLIENT
```

The table below describes the significant fields shown in the display.

Table 11: show vrrs clients Field Descriptions

Field	Description
Priority	Priority of the client.
All-groups	Indicates whether a client is registered for all current and future VRRS groups.

Field	Description
Name	Name of the client.

Related Commands

Command	Description
show vrrp	Displays a brief or detailed status of one or all configured VRRP groups on the router.
show vrrs group	Display information about VRRS groups.
show vrrs plugin database	Displays details about the internal VRRS plug-in database.
show vrrs summary	Displays a summary of all VRRS groups.

show vrrs group

To display information about Virtual Router Redundancy Service (VRRS) groups, use the **show vrrs group** command in user EXEC or privileged EXEC mode.

show vrrs group [*group-name*]

Syntax Description

group-name	Name of a VRRS group.

Command Default

Information about all VRRS groups is displayed.

Command Modes

Privileged EXEC (#) User EXEC (>)

Command History

Release	Modification
Cisco IOS XE Release 2.6	This command was introduced.

Usage Guidelines

Use the **show vrrs group** command to display details of a VRRS redundancy group, if a group name is specified. If no group name is specified, details of all VRRS groups configured or added by clients on the router are displayed.

Examples

The following example displays information about all currently configured VRRS groups:

```
Router# show vrrs group

DT-CLUSTER-3
Server Not configured, state INIT, old state INIT, reason Protocol
  Address family IPv4, Virtual address 0.0.0.0, Virtual mac 0000.0000.0000
  Active interface address 0.0.0.0, standby interface address 0.0.0.0
Client 5 VRRS TEST CLIENT, priority Low
DT-CLUSTER-2
Server VRRP, state BACKUP, old state INIT, reason HA SSO
  Address family IPv4, Virtual address 10.1.1.1, Virtual mac 0000.5e00.0102
  Active interface address 10.1.1.3, standby interface address 10.1.1.2
Client 1 VRRS-Plugins, priority High
Client 2 VRRS-Accounting, priority Low
Client 3 PPPOE-VRRS-CLIENT, priority Normal
DT-CLUSTER-1
Server VRRP, state ACTIVE, old state INIT, reason HA SSO
  Address family IPv4, Virtual address 10.1.1.1, Virtual mac 0000.5e00.0101
  Active interface address 10.1.1.2, standby interface address 10.0.0.0
Client 1 VRRS-Plugins, priority High
Client 2 VRRS-Accounting, priority Low
Client 3 PPPOE-VRRS-CLIENT, priority Normal
```

The table below describes the significant fields shown in the display.

Table 12: show vrrs group Field Descriptions

Field	Description
state	Current state of the server.
old state	Previous state of the server
reason	Reason for the last server state change.
Address family IPv4	Address family for this VRRS group.
Virtual address 0.0.0.0	Virtual IP address for this VRRS group.
Virtual mac 0000.0000.0000	Virtual MAC address for this VRRS group.
Client 1	Client ID of a VRRS client.
VRRS-Plugins	Client name.
priority High	Priority of this client.

Related Commands

Command	Description
show vrrp	Displays a brief or detailed status of one or all configured VRRP groups on the router.
show vrrs clients	Displays a list of VRRS clients.
show vrrs plugin database	Displays details about the internal VRRS plug-in database.
show vrrs summary	Displays a summary of all VRRS groups.

show vrrs plugin database

To display details about the internal Virtual Router Redundancy Service (VRRS) plug-in database, use the **show vrrs plugin database** command in user EXEC or privileged EXEC mode.

show vrrs plugin database

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC (#) User EXEC (>)

Command History

Release	Modification
Cisco IOS XE Release 2.6	This command was introduced.

Usage Guidelines

Use the **show vrrs plugin database** command to display details of the internal VRRS plug-in database. This command maps an interface-specific configuration with a VRRS redundancy group.

The output display includes; name, server connection status, VRRS State (simple), MAC address, test control indicator, VRRS client handle, and the plug-in interface list.

Examples

The following example displays information about the internal VRRS plug-in database:

```
Router# show vrrs plugin database

VRRS Plugin Database
------------------------------------------------
Name = VRRS_NAME_1
Server connection = Live
State = Disabled
MAC addr = 0000.5e00.0101
Test Control = False
Client Handle = 3741319170
Interface list =
                 gige0/0/0.2
                 gige0/0/0.3
------------------------------------------------
Name = VRRS_NAME_2
Server connection = Diconnected
State = Disabled
MAC addr = 0000.0000.0000
Test Control = False
Client Handle = 603979779
Interface list =
                 gige0/0/0.4
------------------------------------------------
```

Related Commands

Command	Description
show vrrp	Displays a brief or detailed status of one or all configured VRRP groups on the router.
show vrrs clients	Displays a list of VRRS clients.
show vrrs group	Display information about VRRS groups.
show vrrs summary	Displays a summary of all VRRS groups.

show vrrs summary

To display a summary of all Virtual Router Redundancy Service (VRRS) groups, use the **show vrrs summary** command in user EXEC or privileged EXEC configuration mode.

show vrrs summary

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC (#) User EXEC (>)

Command History

Release	Modification
Cisco IOS XE Release 2.6	This command was introduced.

Usage Guidelines

Use the **show vrrs summary** command to display a summary of VRRS groups either configured on a router or added by a client. The display includes the following group information: name, server, state, and virtual address.

Examples

The following example displays a summary of VRRS groups:

```
Router# show vrrs summary

Group                                                Server State Virtual-address
------------------------------------------------------------------------------- DT-CLUSTER-3
                                          UNKNOW INIT   0.0.0.0
DT-CLUSTER-2                                         VRRP   BACKUP 10.1.1.1
DT-CLUSTER-1                                         VRRP   ACTIVE 10.1.1.2
```

The table below describes the significant fields shown in the display.

Table 13: show vrrs summary Field Descriptions

Field	Description
Group	VRRS group name.
Server	The server which serves the VRRS group.
State	State of the server for the VRRS group.
Virtual-address	Virtual address associated with the VRRS group.

Related Commands

Command	Description
show vrrp	Displays a brief or detailed status of one or all configured VRRP groups on the router.
show vrrs clients	Displays a list of VRRS clients.
show vrrs group	Display information about VRRS groups.
show vrrs plugin database	Displays details about the internal VRRS plug-in database.