11 Configuring HSRP

The HSRP (Hot Standby Routing Protocol) provides hosts with static routes protection against router failure. When HSRP is configured on a network segment, it provides a virtual MAC address and an IP address that is shared among a group of routers running HSRP. One of these routers is selected by the protocol to be the active router which forwards packets sent to the group's MAC address.

The HSRP protocol detects when the designated active router fails. It then selects a standby router to assume control of the HSRP group's MAC and IP addresses and, at the same time, selects a new standby router. You can configure multiple HSRP groups on an interface, up to 256 groups per VLAN. Each HSRP group is assigned a unique group number.

Routers that are running HSRP send and receive multicast UDP-based hello packets in order to detect router failures and designate active and standby routers. The following terms have a special meaning when using HSRP on an OmniCore routing switch. Each of these is configurable using HSRP commands.

- **hello-time** The length of time between hello packets.
- **hold-time** The interval between the receipt of a hello packet and the presumption that the active router has failed.
- **priority** The priority value used in selecting the active router.

HSRP Commands

The major HSRP commands in the OmniCore CLI are listed in the following tables. The global HSRP commands provide an authentication service for received packets to all HSRP groups on all VLANs. Only the *hsrp strict-protocoladdress* command is enabled by default. The HSRP VLAN commands allow you to create and configure HSRP groups. To see a complete list of these commands or for more information regarding the commands used in this chapter, see the *OmniCore CLI Reference Manual*.

HSRP Global Commands

Command	Default	Description
hsrp strict-auth	disable	Enables or disables strict authentication to validate received packets.
hsrp strict-protocoladdress	enable	Enables or disables protocol address verification to validate received packets.
hsrp strict-ttl	disable	Enables or disables TTL (Time-to-Live) verification to validate received packets.
hsrp strict-virtualaddress	disable	Enables or disables virtual address verification to validate received packets.

HSRP VLAN Commands

Command	Default	Description
vlan hsrp	no default	Creates an HSRP group.
vlan hsrp auth	cisco	Configures an authentication string for the specified HSRP group.
vlan hsrp hello-time	3	Configures the length of time between HSRP hello packets.
vlan hsrp hold-time	10	Determines interval between the receipt of a hello packet and the presumption that the active router has failed.
vlan hsrp hw-priority	100	Used to fine-tune the hardware forwarding decision.
vlan hsrp ip	no default	Configures the virtual IP address used for an HSRP group.
vlan hsrp member	no default	Displays the routing status of ports belonging to a specified HSRP group.
vlan hsrp priority	100	Configures the HSRP priority value used to determine the active router.
vlan hsrp secondary	no default	Configures a secondary virtual IP address for the specified HSRP group.
vlan hsrp track	enable	Creates, deletes, enables, or disables an HSRP tracking entry.
vlan hsrp track priority	10	Sets the priority decrement value for an HSRP tracking entry.

Configuring HSRP

HSRP groups are attached to existing VLANs. See chapter 4, “Configuring VLANS,” for more information. Configuring an HSRP group consists of these tasks:

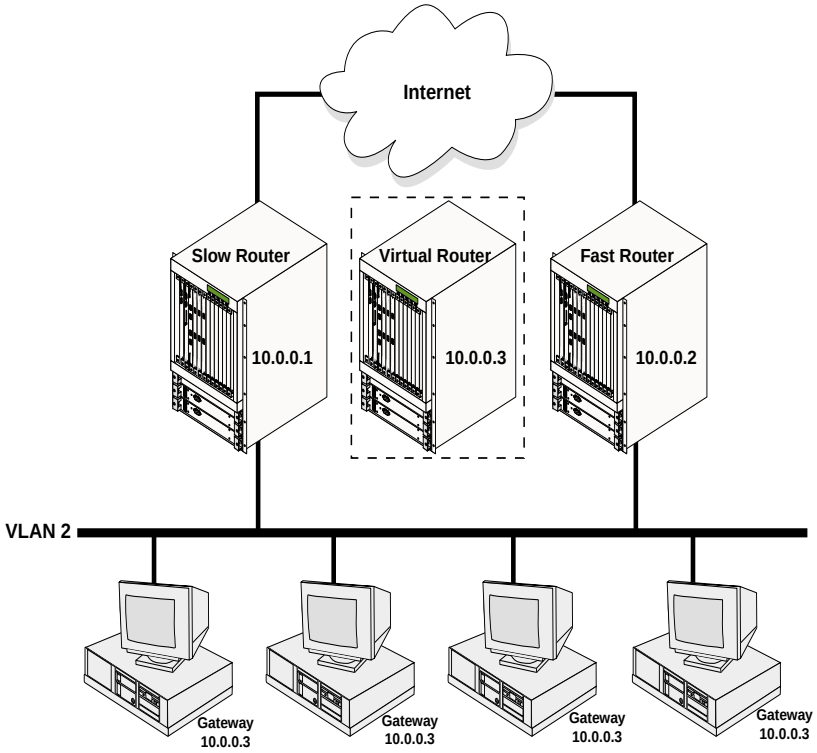
On the routers:

- Create a VLAN and assign it an IP interface.
- Create an HSRP group and assign it a virtual IP address
- (Optional) Escalate the priority of the preferred router

On the client:

- Set the default router IP address to the HSRP virtual IP address.

For purposes of illustration, our example will configure the network shown.



HSRP Network Example

A number of client workstations are configured on VLAN2. Two routers provide a physical connection to the internet. The Fast Router is preferred so it will be given a higher HSRP priority so it will be selected as the active router in the group. The Slow Router will serve as a Standby router should the Fast (active) Router fail. HSRP allows a virtual router to be configured with a virtual MAC and IP address. The client workstations are configured with the default gateway address of the virtual router (10.0.0.3).

Follow these steps to configure HSRP:

1. On each router, create VLAN 2 and assign it an IP address of 10.0.0.1 (Slow Router) and 10.0.0.2 (Fast Router). See chapter 4, “Configuring VLANS,” for more information.

```
Slow Router> vlan 2 tag 2 create
Slow Router> vlan 2 ip 10.0.0.1 mask 255.0.0.0 create
    Fast Router> vlan 2 tag 2 create
    Fast Router> vlan 2 ip 10.0.0.2 mask 255.0.0.0 create
```

2. Create HSRP group zero on each router.

```
Slow Router> vlan 2 hsrp 0 create
    Fast Router> vlan 2 hsrp 0 create
```

3. Assign HSRP group 0 the virtual IP address of 10.0.0.3. on each router.

```
Slow Router> vlan 2 hsrp 0 ip 10.0.0.3
    Fast Router> vlan 2 hsrp 0 ip 10.0.0.3
```

4. Assign the appropriate priority to each HSRP group. The Fast Router is the preferred router since it has a fast link to the internet. On Fast Router, assign the HSRP group a priority of 200. On Slow Router, leave the priority at the default of 100.

```
Fast Router> vlan 2 hsrp 0 priority 200
```

5. (On the client workstations) Set the default gateway IP address to 10.0.0.3.