

# HSRP Cheat Sheet for Cisco Beginners

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*This is a generic cheat sheet and not for a specific use case.*

## What is HSRP?

**Hot Standby Router Protocol (HSRP)** provides gateway redundancy by allowing multiple routers to share a virtual IP address. If the active router fails, the standby router takes over automatically.

## Key HSRP Concepts

### HSRP Roles

- **Active Router:** Forwards traffic for the virtual IP
- **Standby Router:** Backup router, ready to take over
- **Virtual Router:** Logical router with virtual IP and MAC

### HSRP States

- **Initial:** Starting state
- **Learn:** Learning configuration from other routers
- **Listen:** Monitoring HSRP messages
- **Speak:** Participating in election
- **Standby:** Backup router
- **Active:** Forwarding traffic

## Basic HSRP Configuration

### Enable HSRP on Interface

```
Router(config-if)# standby [group-number] ip [virtual-ip]
```

### Set HSRP Priority

```
Router(config-if)# standby [group-number] priority [1-255]
```

### Enable Preemption

```
Router(config-if)# standby [group-number] preempt
```

# Complete HSRP Example

## Router 1 (Primary)

```
Router1(config)# interface gigabit0/0
Router1(config-if)# ip address 192.168.1.1 255.255.255.0
Router1(config-if)# standby 1 ip 192.168.1.10
Router1(config-if)# standby 1 priority 110
Router1(config-if)# standby 1 preempt
```

## Router 2 (Backup)

```
Router2(config)# interface gigabit0/0
Router2(config-if)# ip address 192.168.1.2 255.255.255.0
Router2(config-if)# standby 1 ip 192.168.1.10
Router2(config-if)# standby 1 priority 90
Router2(config-if)# standby 1 preempt
```

## Client Configuration

```
PC Default Gateway: 192.168.1.10
```

## HSRP Timers

### Hello and Hold Timers

```
Router(config-if)# standby [group] timers [hello] [hold]
```

## Example

```
Router(config-if)# standby 1 timers 3 10
```

*Hello every 3 seconds, hold time 10 seconds*

## HSRP Authentication

### Plain Text Authentication

```
Router(config-if)# standby [group] authentication text [password]
```

### MD5 Authentication

```
Router(config-if)# standby [group] authentication md5 key-string [password]
```

## Example

```
Router(config-if)# standby 1 authentication text mypassword
```

## Essential Show Commands

### View HSRP Status

```
Router# show standby  
Router# show standby brief
```

### View Specific Group

```
Router# show standby [group-number]
```

### View HSRP Interface

```
Router# show standby gigabit0/0
```

## Interface Tracking

### Track Interface Status

```
Router(config-if)# standby [group] track [interface] [decrement-value]
```

## Example

```
Router(config-if)# standby 1 track serial0/0/0 20
```

*Reduce priority by 20 if Serial0/0/0 goes down*

## Verification Commands

### Check Active Router

```
Router# show standby brief
```

*Look for "Active" or "Standby" status*

## Test Failover

```
Router# debug standby events
```

## View Virtual MAC Address

```
Router# show standby | include Virtual MAC
```

## Default Values

- **Group Number:** 0 (if not specified)
- **Priority:** 100
- **Hello Timer:** 3 seconds
- **Hold Timer:** 10 seconds
- **Virtual MAC:** 0000.0c07.acXX (XX = group number in hex)
- **Preemption:** Disabled by default

## Key Points

- **Higher priority** = more likely to be active
- **Preemption** allows higher priority router to reclaim active role
- **Virtual IP** must be in same subnet as physical interfaces
- **Authentication** must match between HSRP routers
- **Group numbers** allow multiple HSRP instances per interface

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**Remember:** HSRP provides gateway redundancy - configure clients to use the virtual IP as their default gateway!