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!