



## SSO HSRP

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## Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see [Bug Search Tool](#) and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to [www.cisco.com/go/cfn](http://www.cisco.com/go/cfn). An account on Cisco.com is not required.

## Restrictions for SSO HSRP

- Enhanced Object Tracking (EOT) is not stateful switchover (SSO)-aware and cannot be used with HSRP in SSO mode.

# Information About SSO HSRP

## SSO HSRP

SSO HSRP alters the behavior of HSRP when a device with redundant Route Processors (RPs) is configured for stateful switchover (SSO) redundancy mode. When an RP is active and the other RP is standby, SSO enables the standby RP to take over if the active RP fails.

With this functionality, HSRP SSO information is synchronized to the standby RP, allowing traffic that is sent using the HSRP virtual IP address to be continuously forwarded during a switchover without a loss of data or a path change. Additionally, if both RPs fail on the active HSRP device, then the standby HSRP device takes over as the active HSRP device.

The feature is enabled by default when the redundancy mode of operation is set to SSO.

## SSO Dual-Route Processors and Cisco Nonstop Forwarding

SSO functions in networking devices (usually edge devices) that support dual RPs. SSO provides RP redundancy by establishing one of the RPs as the active processor and the other RP as the standby processor. SSO also synchronizes critical state information between the RPs so that network state information is dynamically maintained between RPs.

SSO is generally used with Cisco nonstop forwarding (NSF). Cisco NSF enables forwarding of data packets to continue along known routes while the routing protocol information is being restored following a switchover. With NSF, users are less likely to experience service outages.

## HSRP and SSO Working Together

The SSO HSRP feature enables the Cisco IOS HSRP subsystem software to detect that a standby RP is installed and the system is configured in SSO redundancy mode. Further, if the active RP fails, no change occurs to the HSRP group itself and traffic continues to be forwarded through the current active gateway device.

Prior to introduction of the SSO HSRP feature, when the primary RP of the active device failed, it would stop participating in the HSRP group and trigger another switch in the group to take over as the active HSRP switch.

SSO HSRP is required to preserve the forwarding path for traffic destined to the HSRP virtual IP address through an RP switchover.

Configuring SSO on the edge device enables the traffic on the Ethernet links to continue during an RP failover without the Ethernet traffic switching over to an HSRP standby device (and then back, if preemption is enabled).

**Note**

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You may want to disable SSO HSRP by using the **no standby sso** command if you have LAN segments that should switch HSRP traffic to a redundant device while SSO maintains traffic flow for other connections.

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# How to Configure SSO HSRP

## Enabling SSO Aware HSRP

The SSO aware HSRP is enabled by default when the redundancy mode is set to SSO. Perform this task to reenable HSRP to be SSO aware if it has been disabled.



### Note

You may want to disable SSO HSRP by using the **no standby sso** command if you have LAN segments that should switch HSRP traffic to a redundant device while SSO maintains traffic flow for other connections.

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **redundancy**
4. **mode sso**
5. **exit**
6. **no standby sso**
7. **standby sso**
8. **end**

### DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Device> enable	Enables privileged EXEC mode.  • Enter your password if prompted.
Step 2	<b>configure terminal</b>  <b>Example:</b> Device# configure terminal	Enters global configuration mode.
Step 3	<b>redundancy</b>  <b>Example:</b> Device(config)# redundancy	Enters redundancy configuration mode.
Step 4	<b>mode sso</b>	Enables the redundancy mode of operation to SSO.

	Command or Action	Purpose
	<b>Example:</b> Device(config-red)# mode sso	<ul style="list-style-type: none"> <li>• HSRP is SSO aware on interfaces that are configured for HSRP and the standby RP is automatically reset.</li> </ul>
<b>Step 5</b>	<b>exit</b>  <b>Example:</b> Device(config-red)# exit	Exits redundancy configuration mode.
<b>Step 6</b>	<b>no standby sso</b>  <b>Example:</b> Device(config)# no standby sso	Disables HSRP SSO mode for all HSRP groups.
<b>Step 7</b>	<b>standby sso</b>  <b>Example:</b> Device(config)# standby sso	Enables the SSO HSRP feature if you have disabled the functionality.
<b>Step 8</b>	<b>end</b>  <b>Example:</b> Device(config)# end	Ends the current configuration session and returns to privileged EXEC mode.

## Verifying SSO Aware HSRP

To verify or debug HSRP SSO operation, perform the following steps from the active RP console.

### SUMMARY STEPS

1. **show standby**
2. **debug standby events ha**

### DETAILED STEPS

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- Step 1**    **show standby**  
 Use the **show standby** command to display the state of the standby RP, for example:

**Example:**

```
Device# show standby

GigabitEthernet0/0/0 - Group 1
State is Active (standby RP)
Virtual IP address is 10.1.0.7
Active virtual MAC address is unknown
Local virtual MAC address is 000a.f3fd.5001 (bia)
Hello time 1 sec, hold time 3 sec
Authentication text "authword"
Preemption enabled
Active router is unknown
Standby router is unknown
Priority 110 (configured 120)
Track object 1 state Down decrement 10
Group name is "name1" (cfgd)
```

**Step 2** **debug standby events ha**

Use the **debug standby events ha** command to display the active and standby RPs, for example:

**Example:**

```
Device# debug standby events ha

!Active RP
*Apr 27 04:13:47.755: HSRP: Gi0/0/1 Grp 101 RF Encode state Listen into sync buffer
*Apr 27 04:13:47.855: HSRP: CF Sync send ok
*Apr 27 04:13:57.755: HSRP: Gi0/0/1 Grp 101 RF Encode state Speak into sync buffer
*Apr 27 04:13:57.855: HSRP: CF Sync send ok
*Apr 27 04:14:07.755: HSRP: Gi0/0/1 Grp 101 RF Encode state Standby into sync buffer
*Apr 27 04:14:07.755: HSRP: Gi0/0/1 Grp 101 RF Encode state Active into sync buffer
*Apr 27 04:14:07.863: HSRP: CF Sync send ok
*Apr 27 04:14:07.867: HSRP: CF Sync send ok
!Standby RP
*Apr 27 04:11:21.011: HSRP: RF CF client 32, entity 0 got msg len 24
*Apr 27 04:11:21.011: HSRP: Gi0/0/1 Grp 101 RF sync state Init -> Listen
*Apr 27 04:11:31.011: HSRP: RF CF client 32, entity 0 got msg len 24
*Apr 27 04:11:31.011: HSRP: Gi0/0/1 Grp 101 RF sync state Listen -> Speak
*Apr 27 04:11:41.071: HSRP: RF CF client 32, entity 0 got msg len 24
*Apr 27 04:11:41.071: HSRP: RF CF client 32, entity 0 got msg len 24
*Apr 27 04:11:41.071: HSRP: Gi0/0/1 Grp 101 RF sync state Speak -> Standby
*Apr 27 04:11:41.071: HSRP: Gi0/0/1 Grp 101 RF sync state Standby -> Active
```

## Configuration Examples for SSO HSRP

### Example: Enabling SSO-Aware HSRP

The following example shows how to set the redundancy mode to SSO. HSRP is automatically SSO-aware when this mode is enabled.

```
Device(config)# redundancy
Device(config-red)# mode sso
```

If SSO HSRP is disabled using the **no standby sso** command, you can reenable it as shown in the following example:

```
Device(config)# interface GigabitEthernet 1/0/0
Device(config-if)# ip address 10.1.1.1 255.255.0.0
Device(config-if)# standby priority 200
Device(config-if)# standby preempt
Device(config-if)# standby sso
```

## Additional References

### Related Documents

Related Topic	Document Title
Cisco IOS commands	<a href="#">Cisco IOS Master Commands List, All Releases</a>
HSRP commands: complete command syntax, command mode, command history, defaults, usage guidelines, and examples	<i>Cisco IOS First Hop redundancy Protocols Command Reference</i>
HSRP for IPv6	“HSRP for IPv6” module
Troubleshooting HSRP	<a href="#">Hot Standby Router Protocol: Frequently Asked Questions</a>

### Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	--

### MIBs

MIBs	MIBs Link
CISCO-HSRP-MIB CISCO-HSRP-EXT-MIB	To locate and download MIBs for selected platforms, Cisco software releases, and feature sets, use Cisco MIB Locator found at the following URL: <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a>

**RFCs**

<b>RFCs</b>	<b>Title</b>
RFC 792	<i>Internet Control Message Protocol</i>
RFC 1828	<i>IP Authentication Using Keyed MD5</i>
RFC 2281	<i>Cisco Hot Standby Router Protocol</i>

**Technical Assistance**

<b>Description</b>	<b>Link</b>
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	<a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a>

## Feature Information for SSO - HSRP

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

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**Table 1: Feature Information for SSO—HSRP**

<b>Feature Name</b>	<b>Releases</b>	<b>Feature Information</b>
SSO—HSRP	12.2(25)S 12.2(33)SRA 12.2(33)SXH 12.2(50)SY 15.0(1)S 15.0(1)SY Cisco IOS XE Release 2.1 Cisco IOS XE 3.1.0SG	The SSO—HSRP feature alters the behavior of HSRP when a device with redundant RPs is configured for SSO. When an RP is active and the other RP is standby, SSO enables the standby RP to take over if the active RP fails.  The following commands were introduced or modified by this feature: <b>debug standby events</b> , <b>standby sso</b> .

