



## BGP NSR Support for iBGP Peers

BGP NSR provides BGP nonstop routing (NSR) and nonstop forwarding (NSF) in the event of a switchover from an Active RP to the Standby RP. The BGP NSR Support for iBGP Peers feature provides NSR support for iBGP peers configured under the IPv4 unicast or IPv4 + label address family.

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## Restrictions on BGP NSR Support for iBGP Peers

- This feature applies to iBGP peers configured under IPv4 unicast or IPv4 + label address families.
- When you configure BGP with graceful restart and remove the BGP configuration using **no router bgp** command, the graceful restart timer starts. As a result, the stale entry is present in the BGP routing table and it is only removed after the BGP graceful restart timer is over.
- With BGP PIC edge enabled with additional paths on the system, the **ha-mode sso prefer** CLI command is not supported for the BGP neighbor and the opposite way.

## Information About BGP NSR Support for iBGP Peers

### Benefit of BGP NSR Support for iBGP Peers

Nonstop routing is beneficial for iBGP peers because it reduces the likelihood of dropped packets during switchover from the Active RP to the Standby RP. Switchover occurs when the Active RP fails for some reason, and the Standby RP takes control of Active RP operations.

# How to Configure BGP NSR Support for iBGP Peers

## Making an iBGP Peer NSR-Capable for the IPv4 Address Family

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router bgp** *autonomous-system-number*
4. **address-family ipv4** [**unicast** | **vrf** *vrf-name*]
5. **neighbor** *ip-address* **remote-as** *as-number*
6. **neighbor** *ip-address* **activate**
7. **neighbor** *ip-address* **ha-mode sso**
8. **end**

### DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b> <b>Example:</b>  Device> enable	Enables privileged EXEC mode.  • Enter your password if prompted.
<b>Step 2</b>	<b>configure terminal</b> <b>Example:</b>  Device# configure terminal	Enters global configuration mode.
<b>Step 3</b>	<b>router bgp</b> <i>autonomous-system-number</i> <b>Example:</b>  Device(config)# router bgp 4000	Enters router configuration mode for the specified routing process.
<b>Step 4</b>	<b>address-family ipv4</b> [ <b>unicast</b>   <b>vrf</b> <i>vrf-name</i> ] <b>Example:</b>  Device(config-router)# address-family ipv4 unicast	Specifies the IPv4 address family and enters address family configuration mode.  • The <b>unicast</b> keyword specifies the IPv4 unicast address family.  • The <b>vrf</b> keyword and <i>vrf-name</i> argument specify the name of the virtual routing and forwarding (VRF) instance to associate with subsequent IPv4 address family configuration mode commands.
<b>Step 5</b>	<b>neighbor</b> <i>ip-address</i> <b>remote-as</b> <i>as-number</i> <b>Example:</b>	Specifies the autonomous system of the neighbor.

	Command or Action	Purpose
	Device(config-router-af)# neighbor 192.168.1.1 remote-as 4000	
<b>Step 6</b>	<b>neighbor ip-address activate</b>  <b>Example:</b>  Device(config-router-af)# neighbor 192.168.1.1 activate	Activates the specified peer.
<b>Step 7</b>	<b>neighbor ip-address ha-mode sso</b>  <b>Example:</b>  Device(config-router-af)# neighbor 192.168.1.1 ha-mode sso	Configures a BGP neighbor to support BGP NSR with stateful switchover (SSO).
<b>Step 8</b>	<b>end</b>  <b>Example:</b>  Device(config-router-af)# end	Exits address family configuration mode and returns to privileged EXEC mode.

## Making an iBGP Peer NSR-Capable for the VPNv4 Address Family

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router bgp** *autonomous-system-number*
4. **neighbor ip-address remote-as** *as-number*
5. **neighbor ip-address ha-mode sso**
6. **address-family vpnv4** [*unicast*]
7. **neighbor ip-address activate**
8. **end**

### DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b>  <b>Example:</b>  Device> enable	Enables privileged EXEC mode.  • Enter your password if prompted.
<b>Step 2</b>	<b>configure terminal</b>  <b>Example:</b>  Device# configure terminal	Enters global configuration mode.

	Command or Action	Purpose
<b>Step 3</b>	<b>router bgp</b> <i>autonomous-system-number</i> <b>Example:</b>  Device(config)# router bgp 4000	Enters router configuration mode for the specified routing process.
<b>Step 4</b>	<b>neighbor</b> <i>ip-address</i> <b>remote-as</b> <i>as-number</i> <b>Example:</b>  Device(config-router)# neighbor 192.168.1.1 remote-as 4000	Specifies the autonomous system of the neighbor.
<b>Step 5</b>	<b>neighbor</b> <i>ip-address</i> <b>ha-mode sso</b> <b>Example:</b>  Device(config-router)# neighbor 192.168.1.1 ha-mode sso	Configures a BGP neighbor to support BGP NSR with stateful switchover (SSO).
<b>Step 6</b>	<b>address-family vpnv4</b> [ <b>unicast</b> ] <b>Example:</b>  Device(config-router)# address-family VPNv4 unicast	Specifies the VPNv4 address family and enters address family configuration mode.
<b>Step 7</b>	<b>neighbor</b> <i>ip-address</i> <b>activate</b> <b>Example:</b>  Device(config-router-af)# neighbor 192.168.1.1 activate	Activates the specified peer.
<b>Step 8</b>	<b>end</b> <b>Example:</b>  Device(config-router-af)# end	Exits address family configuration mode and returns to privileged EXEC mode.

## Making an iBGP Peer NSR Capable at the Router Level

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router bgp** *autonomous-system-number*
4. **neighbor** *ip-address* **remote-as** *as-number*
5. **neighbor** *ip-address* **activate**
6. **neighbor** *ip-address* **ha-mode sso**
7. **end**
8. **show ip bgp sso summary**

## DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b> <b>Example:</b>  Device> enable	Enables privileged EXEC mode.  • Enter your password if prompted.
<b>Step 2</b>	<b>configure terminal</b> <b>Example:</b>  Device# configure terminal	Enters global configuration mode.
<b>Step 3</b>	<b>router bgp</b> <i>autonomous-system-number</i> <b>Example:</b>  Device(config)# router bgp 4000	Enters router configuration mode for the specified routing process.
<b>Step 4</b>	<b>neighbor</b> <i>ip-address</i> <b>remote-as</b> <i>as-number</i> <b>Example:</b>  Device(config-router)# neighbor 192.168.1.1 remote-as 4000	Specifies the autonomous system of the neighbor.
<b>Step 5</b>	<b>neighbor</b> <i>ip-address</i> <b>activate</b> <b>Example:</b>  Device(config-router)# neighbor 192.168.1.1 activate	Activates the specified neighbor.
<b>Step 6</b>	<b>neighbor</b> <i>ip-address</i> <b>ha-mode sso</b> <b>Example:</b>  Device(config-router)# neighbor 192.168.1.1 ha-mode sso	Configures the specified peer to be NSR capable in all of the NSR-supported address families under which that peer has been activated.
<b>Step 7</b>	<b>end</b> <b>Example:</b>  Device(config-router)# end	Exits configuration mode and returns to privileged EXEC mode.
<b>Step 8</b>	<b>show ip bgp sso summary</b> <b>Example:</b>  Device# show ip bgp sso summary	(Optional) Displays information about stateful switchover (sso) and whether a peer has NSR enabled or disabled.

# Configuration Examples for BGP NSR Support for an iBGP Peer

## Example: Configuring an iBGP Peer To Be NSR Capable

### Configuring an iBGP Peer to Be NSR Capable at the Address Family Level

```
router bgp 4000
  address-family ipv4 unicast
  neighbor 192.168.1.1 remote-as 4000
  neighbor 192.168.1.1 activate
  neighbor 192.168.1.1 ha-mode sso
```

### Configuring an iBGP Peer to Be NSR Capable at the Router Level

```
router bgp 4000
  neighbor 192.168.1.1 remote-as 4000
  neighbor 192.168.1.1 activate
  neighbor 192.168.1.1 ha-mode sso
```