



# BGP AS-Override Split-Horizon

The BGP AS-Override Split-Horizon feature enables a Provider Edge (PE) device using split-horizon to avoid advertisement of routes propagated by a Customer Edge (CE) device to the same CE device. The BGP AS-Override Split-Horizon feature also enables a PE or CE device to send route updates to a specific PE or CE device in the same replication group.

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## Information About BGP AS-Override Split-Horizon

### BGP AS-Override Split-Horizon Overview

When you configure split-horizon on a device, the Provider Edge (PE) device may advertise routes propagated from a Customer Edge (CE) device to the same CE device. The BGP AS-Override Split Horizon feature groups all the BGP neighbors into separate replication-groups, even when they are in the same update-group, and ensures that the route updates propagated from a CE device are not sent to the same CE device.

The BGP AS-Override Split Horizon feature enables a PE or CE device to selectively send and block updates to one or more neighboring PE or CE devices in the same update-group. The PE or CE device sends or blocks a message to a neighboring PE or CE device based on the type of the message and on whether the originator of the message matches the router ID of the PE or CE device.

## How to Configure BGP AS-Override Split-Horizon

### Configuring BGP AS-Override Split-Horizon

#### SUMMARY STEPS

1. `enable`

2. **configure terminal**
3. **router bgp** *autonomous-system-number*
4. **address family ipv4 vrf** *vrf-name*
5. **neighbor** *ip-address* **remote-as** *autonomous-system-number*
6. **neighbor** *ip-address* **activate**
7. **neighbor** *ip-address* **as-override split-horizon**
8. Repeat Step 5 to Step 7 to enable split-horizon for different neighbors in a virtual routing and forwarding (VRF) instance.
9. **end**

## DETAILED STEPS

### Procedure

|               | Command or Action   | Purpose  |
|---------------|---|--|
| <b>Step 1</b> | <b>enable</b><br><b>Example:</b><br>Device> enable  | Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>   |
| <b>Step 2</b> | <b>configure terminal</b><br><b>Example:</b><br>Device# configure terminal  | Enters global configuration mode.  |
| <b>Step 3</b> | <b>router bgp</b> <i>autonomous-system-number</i><br><b>Example:</b><br>Device(config)# router bgp 21   | Configures the Border Gateway Protocol (BGP) routing process and enters router configuration mode.   |
| <b>Step 4</b> | <b>address family ipv4 vrf</b> <i>vrf-name</i><br><b>Example:</b><br>Device(config-router)# address-family ipv4 vrf vrf1  | Specifies the name of the VPN routing and forwarding (VRF) instance to associate with subsequent IPv4 address family configuration mode commands and enters address-family configuration mode. |
| <b>Step 5</b> | <b>neighbor</b> <i>ip-address</i> <b>remote-as</b> <i>autonomous-system-number</i><br><b>Example:</b><br>Device(config-router-af)# neighbor 192.0.2.1 remote-as 1 | Configures peering with a BGP neighbor in the specified autonomous system.   |
| <b>Step 6</b> | <b>neighbor</b> <i>ip-address</i> <b>activate</b><br><b>Example:</b><br>Device(config-router-af)# neighbor 192.0.2.1 activate                                     | Enables the neighbor to exchange prefixes for the IPv4 address family with the local device.   |

|        | Command or Action   | Purpose   |
|--------|---|---|
| Step 7 | <b>neighbor <i>ip-address</i> as-override split-horizon</b><br><b>Example:</b><br><pre>Device(config-router-af)# neighbor 192.0.2.1 as-override split-horizon</pre> | Enables split-horizon per neighbor in a VRF instance.                           |
| Step 8 | Repeat Step 5 to Step 7 to enable split-horizon for different neighbors in a virtual routing and forwarding (VRF) instance.   | —   |
| Step 9 | <b>end</b><br><b>Example:</b><br><pre>Device(config-router-af)# end</pre>   | Exits router address-family configuration mode and enters privileged EXEC mode. |

## Verifying BGP AS-Override Split-Horizon

### SUMMARY STEPS

1. **enable**
2. **show ip bgp vpn4 all update-group**
3. **show ip bgp vpnv4 all neighbors *ip-address***
4. **show ip bgp vpnv4 all neighbors *ip-address* policy**

### DETAILED STEPS

#### Procedure

|        | Command or Action   | Purpose  |
|--------|---|--|
| Step 1 | <b>enable</b><br><b>Example:</b><br><pre>Device&gt; enable</pre>  | Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul> |
| Step 2 | <b>show ip bgp vpn4 all update-group</b><br><b>Example:</b><br><pre>Device# show ip bgp vpn4 all update-group</pre>                         | Displays information on update groups.   |
| Step 3 | <b>show ip bgp vpnv4 all neighbors <i>ip-address</i></b><br><b>Example:</b><br><pre>Device# show ip bgp vpnv4 all neighbors 192.0.2.1</pre> | Displays details about neighbor connections.   |
| Step 4 | <b>show ip bgp vpnv4 all neighbors <i>ip-address</i> policy</b>   | Displays neighbor policies per address-family.   |



```

Neighbor sessions:
  1 active, is not multisession capable (disabled)
Neighbor capabilities:
  Route refresh: advertised and received(new)
  Four-octets ASN Capability: advertised and received
  Address family IPv4 Unicast: advertised and received
  Enhanced Refresh Capability: advertised and received
  Multisession Capability:
  Stateful switchover support enabled: NO for session 1
Message statistics:
  InQ depth is 0
  OutQ depth is 0

                Sent          Rcvd
Opens:           1            1
Notifications:  0            0
Updates:         6            2
Keepalives:      3            3
Route Refresh:   0            0
Total:           12           6
Default minimum time between advertisement runs is 0 seconds

```

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For address family: VPNv4 Unicast
Translates address family IPv4 Unicast for VRF vrf1
Session: 209.165.200.228
BGP table version 40, neighbor version 40/0
Output queue size : 0
Index 1, Advertise bit 1
1 update-group member
Overrides the neighbor AS with my AS before sending updates
Split horizon processing before sending updates
Slow-peer detection is disabled
Slow-peer split-update-group dynamic is disabled

                Sent          Rcvd
Prefix activity:  ----          ----
Prefixes Current:      10            2 (Consumes 160 bytes)
Prefixes Total:        10            2
Implicit Withdraw:      0            0
Explicit Withdraw:     0            0
Used as bestpath:      n/a           2
Used as multipath:     n/a           0
Outbound  Inbound
Local Policy Denied Prefixes:  -----
Total:                                0            0
Number of NLRI in the update sent: max 5, min 0
Last detected as dynamic slow peer: never
Dynamic slow peer recovered: never
Refresh Epoch: 1
Last Sent Refresh Start-of-rib: 00:01:26
Last Sent Refresh End-of-rib: 00:01:26
Refresh-Out took 0 seconds
Last Received Refresh Start-of-rib: never
Last Received Refresh End-of-rib: never

                Sent          Rcvd
Refresh activity:  ----          ----
Refresh Start-of-RIB      1            0
Refresh End-of-RIB        1            0

Address tracking is enabled, the RIB does have a route to 209.165.200.228
Connections established 3; dropped 2
Last reset 00:01:35, due to split-horizon config change of session 1
Transport(tcp) path-mtu-discovery is enabled
Graceful-Restart is disabled

```

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Connection state is ESTAB, I/O status: 1, unread input bytes: 0
Connection is ECN Disabled
Minimum incoming TTL 0, Outgoing TTL 1
Local host: 209.165.200.225, Local port: 22789
Foreign host: 209.165.200.228, Foreign port: 179
Connection tableid (VRF): 2

```

### Sample output for the `show ip bgp vpnv4 all neighbors ip-address policy` command

To display neighbor policies per address-family, use the `show ip bgp vpnv4 all neighbors ip-address policy` command in privileged EXEC mode.

```

Device> enable
Device# show ip bgp vpnv4 all neighbors 209.165.200.228
Neighbor: 209.165.200.228, Address-Family: VPNv4 Unicast (vrf1)
  Locally configured policies:
    as-override split-horizon

```

## Additional References for BGP AS-Override Split-Horizon

### Related Documents

| Related Topic      | Document Title  |
|--------------------|---|
| Cisco IOS commands | <a href="#">Cisco IOS Master Command List, All Releases</a> |

### Technical Assistance

| Description   | Link  |
|---|---|
| <p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p> | <a href="http://www.cisco.com/support">http://www.cisco.com/support</a> |

## Feature Information for BGP AS-Override Split-Horizon

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.

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.

Table 1: Feature Information for BGP AS-Override Split-Horizon

| Feature Name                  | Releases | Feature Information   |
|-------------------------------|----------|---|
| BGP AS-Override Split-Horizon |          | <p>The BGP AS-Override Split-Horizon feature enables a Provider Edge (PE) device using split-horizon to avoid advertisement of routes propagated by a Customer Edge (CE) device to the same CE device. The BGP AS-Override Split-Horizon feature also enables a PE or CE device to send route updates to specific PE or CE device in the same replication group.</p> <p>The following command was introduced or modified: <b>neighbor ip-address as-override split-horizon.</b></p> |

