Suppress BGP Advertisement for Inactive Routes

The Suppress BGP Advertisements for Inactive Routes features allows you to configure the suppression of advertisements for routes that are not installed in the Routing Information Base (RIB). Configuring this feature allows Border Gateway Protocol (BGP) updates to be more consistent with data used for traffic forwarding.

Feature History for the Suppress BGP Advertisement for Inactive Routes Feature

Release	Modification
12.2(25)S	This feature was introduced.

Finding Support Information for Platforms and Cisco IOS Software Images

Use Cisco Feature Navigator to find information about platform support and Cisco IOS software image support. Access Cisco Feature Navigator at http://www.cisco.com/go/fn. You must have an account on Cisco.com. If you do not have an account or have forgotten your username or password, click **Cancel** at the login dialog box and follow the instructions that appear.

Contents

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How to Configure BGP to Suppress Advertisement for Inactive Routes

This section contains the following tasks:

Suppressing Inactive Route Advertisement

In Cisco IOS software, a BGP routing process can advertise routes that are not installed in the RIB to BGP peers by default. A route that is not installed into the RIB is an inactive route. Inactive route advertisement can occur, for example, when routes are advertised through common route aggregation.

Entering the **bgp suppress-inactive** command configures BGP to not advertise inactive routes to any BGP peer. The **no** form of this command is used to enable inactive route advertisement.

Suppressing Inactive Route Advertisement to Provide More Consistent Data Forwarding

Inactive route advertisements can be suppressed to provide more consistent data forwarding. This feature can be configured on a per IPv4 address family basis. For example, when configuring maximum number of routes that can be configured in a VRF with the **maximum routes** global configuration command, you also suppress inactive route advertisement to prevent inactive routes from being accepted into the VRF after route limit has been exceeded.

Prerequisites

This document assumes that BGP is enabled and peering has been established.

Restrictions

Inactive route suppression can be configured only under the IPv4 address family or under a default IPv4 general session.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router bgp** *as-number*
4. **address-family** {**ipv4** [**multicast** | **unicast** [**vrf** *vrf-name*] | **vrf** *vrf-name*] | **ipv6** [**multicast** | **unicast**] | **vpnv4** [**unicast**]}
5. **bgp suppress-inactive**
6. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**router bgp** *as-number* **Example:** `Router(config)# router bgp 65535`	Enters router configuration mode, and creates a BGP routing process.
Step 4	**address-family** {**ipv4** [**multicast** | **unicast** [**vrf** *vrf-name*] | **vrf** *vrf-name*] | **ipv6** [**multicast** | **unicast**] | **vpnv4** [**unicast**]} **Example:** `Router(config-router-af)# address-family ipv4 unicast`	Enter address family configuration mode to configure BGP peers to accept address family specific configurations. • The example creates an IPv4 unicast address family session.
Step 5	**bgp suppress-inactive** **Example:** `Router(config-router-af)# bgp suppress-inactive`	Exits address-family configuration mode, and enters Privileged EXEC mode. • BGP advertises inactive routes by default. • Entering the **no** form of this command enables the advertisement of inactive routes.
Step 6	**end** **Example:** `Router(config-extcom-list)# end`	Exits address-family configuration mode and enters privileged EXEC mode.

Displaying Inactive Routes

BGP routes that were not installed in the RIB can be displayed by entering the **show ip bgp rib-failure** command in EXEC mode.

SUMMARY STEPS

1. **show ip bgp rib-failure**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**show ip bgp rib-failure** **Example:** `Router> show ip bgp rib-failure`	Displays BGP routes that are not installed in the RIB.

Configuration Examples for BGP Inactive Route Advertisement Suppression

The following examples show how to configure and verify this feature:

- Configuring the Suppression of Inactive Route Advertisement: Example, page 4
- Displaying Inactive Routes: Example, page 4

Configuring the Suppression of Inactive Route Advertisement: Example

The following example, starting in global configuration mode, configures BGP to not advertise inactive routes:

```
Router(config)# router bgp 50000
Router(config-router)# address-family ipv4 unicast
Router(config-router-af)# bgp suppress-inactive
Router(config-router-af)# end
```

The following example configures a maximum route limit in the VRF named red and configures BGP to not advertise inactive routes through the VRF named RED:

```
Router(config)# ip vrf RED
Router(config-vrf)# rd 50000:10
Router(config-vrf)# maximum routes 1000 10
Router(config-vrf)# exit
Router(config)# router bgp 50000
Router(config-router)# address-family ipv4 vrf RED
Router(config-router-af)# bgp suppress-inactive
Router(config-router-af)# end
```

Displaying Inactive Routes: Example

The following example uses the **show ip bgp rib-failure** Exec command to display routes that are not installed in the RIB. The output shows that the displayed routes were not installed because a route or routes with a better administrative distance already exist in the RIB.

```
Router# show ip bgp rib-failure

Network           Next Hop                      RIB-failure   RIB-NH Matches
10.1.15.0/24      10.1.35.5          Higher admin distance             n/a
10.1.16.0/24      10.1.15.1          Higher admin distance             n/a
```

Additional References

The following sections provide references related to Suppress BGP Advertisement for Inactive Routes.

Related Documents

Related Topic	Document Title
BGP commands	• *Cisco IOS IP Command Reference, Volume 2 of 4: Routing Protocols,* Release 12.3T
BGP configuration tasks	• *Cisco IOS IP Configuration Guide,* Release 12.3

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
No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by this feature.	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

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

Technical Assistance

Description	Link
Technical Assistance Center (TAC) home page, containing 30,000 pages of searchable technical content, including links to products, technologies, solutions, technical tips, tools, and lots more. Registered Cisco.com users can log in from this page to access even more content.	TAC Home Page: http://www.cisco.com/public/support/tac/home.shtml BGP Support Page: http://www.cisco.com/en/US/partner/tech/tk365/tk80/tsd_technology_support_sub-protocol_home.html

Command Reference

This section documents modified commands.

- **bgp suppress-inactive**
- **show ip bgp rib-failure**

bgp suppress-inactive

To suppress the advertisement of routes that are not installed in the routing information base (RIB), use the **bgp suppress-inactive** command in address family or router configuration mode.

bgp suppress-inactive

no bgp suppress inactive

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

Address family configuration
Router configuration

Command History

Release	Modification
12.2(11)T	This command was introduced.
12.0(26)S	This command was integrated into Cisco IOS Release 12.0(26)S.
12.2(25)S	This command was integrated into Cisco IOS Release 12.2(25)S.

Usage Guidelines

The **bgp suppress-inactive** command is used to prevent routes that are not installed in the RIB (inactive routes) from being advertised to peers. If this feature is not enabled or if the **no** form of this command is used, Border Gateway Protocol (BGP) will advertise inactive routes.

Note BGP marks routes that are not installed into the RIB with a RIB-failure flag. This flag will also appear in the output of the **show ip bgp** command; for example, Rib-Failure (17). This flag does not indicate an error or problem with the route or the RIB, and the route may still be advertised depending on the configuration of this command. Enter the **show ip bgp rib-failure** command to see more information about the inactive route.

Examples

In the following example, the BGP routing process is configured to not advertise routes that are not installed in the RIB:

```
Router(config)# router bgp 500000
Router(config-router)# address-family ipv4
Router(config-router)# bgp suppress-inactive
```

Related Commands

Command	Description
clear ip bgp	Resets a BGP connection or session.
show ip bgp rib-failure	Displays Border Gateway Protocol (BGP) routes that failed to install in the Routing Information Base (RIB) table.

show ip bgp rib-failure

To display Border Gateway Protocol (BGP) routes that failed to install in the Routing Information Base (RIB) table, use the **show ip bgp rib-failure** command in EXEC mode.

show ip bgp rib-failure

Syntax Description

This command has no keywords or arguments.

Command Modes

EXEC

Command History

Release	Modification
12.3	This command was introduced.
12.0(26)S	This command was integrated into Cisco IOS Release 12.0(26)S.
12.2(25)S	This command was integrated into Cisco IOS Release 12.2(25)S.

Examples

The following is sample output from the **show ip bgp rib-failure** command:

```
Router# show ip bgp rib-failure

Network            Next Hop                      RIB-failure   RIB-NH Matches
10.1.15.0/24       10.1.35.5           Higher admin distance             n/a
10.1.16.0/24       10.1.15.1           Higher admin distance             n/a
```

Table 1 describes the significant fields shown in the display.

Table 1 show ip bgp rib-failure Field Descriptions

Field	Description
Network	IP address of a network entity.
Next Hop	IP address of the next system that is used when forwarding a packet to the destination network. An entry of 0.0.0.0 indicates that the router has some non-BGP routes to this network.

Table 1 show ip bgp rib-failure Field Descriptions (continued)

Field	Description
RIB-failure	Cause of RIB failure. Higher admin distance means that a route with a better (lower) administrative distance such as a static route already exists in the IP routing table.
RIB-NH Matches	Route status that applies only when Higher admin distance appears in the RIB-failure column and **bgp suppress-inactive** is configured for the address family being used. There are three choices: • Yes—Means that the route in the RIB has the same nexthop as the BGP route or nexthop recurses down to the same adjacency as the BGP nexthop. • No—Means that the nexthop in the RIB recurses down differently from the nexthop of the BGP route. • n/a—Means that **bgp suppress-inactive** is not configured for the address family being used.

Related Commands

Command	Description
bgp suppress-inactive	Configures a router to suppress the advertisement of BGP routes that are not installed into the Routing Information Base (RIB) and Forwarding Information Base (FIB) tables
clear ip bgp	Resets a BGP connection or session.
neighbor soft-reconfiguration	Configures the Cisco IOS software to start storing updates.