BGP Enhanced Route Refresh

The BGP Enhanced Route Refresh feature provides a way for Border Gateway Protocol (BGP) to find route inconsistencies, and in that unlikely event, to synchronize BGP peers without a hard reset. The feature is enabled by default; there are two optional timers.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see 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 for BGP Enhanced Route Refresh, on page 4.

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

Information About BGP Enhanced Route Refresh

BGP Enhanced Route Refresh Functionality

During session establishment, BGP peers exchange with each other their capability to do the BGP Enhanced Route Refresh feature. The feature is enabled by default.

It is not expected that the peers will become inconsistent with each other. That might only happen in an extreme corner case, and if that happens, this feature helps to identify that and synchronize the peers without a hard reset.

If two peers are capable of Enhanced Route Refresh, each peer will generate a Route-Refresh Start-of-RIB (SOR) message before it advertises the Adj-RIB-Out, and will generate a Route-Refresh End-of-RIB (EOR)

message after it advertises the Adj-RIB-Out. A BGP speaker receiving an EOR message from its peer removes the routes that were not re-advertised as part of Route Refresh response by the peer.

In the unlikely event the router has stale routes remaining after receiving the EOR message or after the EOR timer expires, that means the peers were not consistent with each other. This information can be used to check whether routes are consistent.

BGP Enhanced Route Refresh Timers

These timers need not be configured under normal circumstances.You could configure one or both timers if you observe there is continuous route flapping to the extent that a Route Refresh EOR cannot be generated.

The first timer applies to the router when it should be receiving the EOR message, but is not receiving one. The second timer applies to the router when it should be sending the EOR message.

- Stale path timer—If the **bgp refresh stalepath-time** command is configured and the router does not receive a Route-Refresh EOR message after an Adj-RIB-Out, the router removes the stale routes from the BGP table after the timer expires. The stale path timer is started when the router receives a Route-Refresh SOR message.

- Maximum EOR timer—If the **bgp refresh max-eor-time** command is configured and the router is unable to generate a Route-Refresh EOR message, a Route-Refresh EOR message is generated after the timer expires.

Both timers are configurable. By default, they are both disabled (set to 0 seconds).

Syslog Messages Generated by the BGP Enhanced Route Refresh

The following are examples of syslog messages that are generated when a peer deletes stale routes after receiving the Route-Refresh EOR message or after the stale path timer expires. The messages help you to know whether the routers were inconsistent.

```
Net 300:300:3.3.0.0/0 from bgp neighbor IPv4 MDT 10.0.101.1 is stale after refresh EOR
(rate-limited)
Net 300:300:3.3.0.0/0 from bgp neighbor IPv4 MDT 10.0.101.1 is stale after refresh stale-path
 timer expiry (rate-limited)
```

The following are examples of messages logged after a Route-Refresh EOR or after the stale path timer expires, which indicate the total number of stale paths that were from the neighbor.

```
3 stale-paths deleted from bgp neighbor IPv4 MDT 10.0.101.1 after refresh EOR
3 stale-paths deleted from bgp neighbor IPv4 MDT 10.0.101.1 after refresh stale-path timer
 expiry
```

How to Set Timers for BGP Enhanced Route Refresh

Set Timers for BGP Enhanced Route Refresh

The BGP Enhanced Route Refresh feature is enabled by default; the timers are disabled by default. Perform this task if you want to set the optional timers.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router bgp** *autonomous-system*
4. **bgp refresh stalepath-time** *seconds*
5. **bgp refresh max-eor-time** *seconds*

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** *autonomous-system* **Example:** `Router(config)# router bgp 65000`	Enters router configuration mode to create or configure a BGP routing process.
Step 4	**bgp refresh stalepath-time** *seconds* **Example:** `Router(config-router)# bgp refresh stalepath-time 1200`	(Optional) Causes the router to remove stale routes from the BGP table after the timer expires, even if the router does not receive a Route-Refresh End-of-RIB message. • Valid values are from 600 to 3600, or 0. • The default is 0, meaning the stale-path timer is disabled. • The stale path timer is started when a router receives a Route-Refresh Start-of-RIB message.
Step 5	**bgp refresh max-eor-time** *seconds* **Example:** `Router(config-router)# bgp refresh max-eor-time 1200`	(Optional) Specifies that if BGP is unable to generate a Route-Refresh End-of-RIB (EOR) message, a Route-Refresh EOR is generated after the timer expires. • Valid values are from 600 to 3600, or 0. • The default is 0, meaning the max-eor timer is disabled.

Configuration Examples for BGP Enhanced Route Refresh

Example: Setting Timers for BGP Enhanced Route Refresh

In the following example, if no Route-Refresh EOR message is received after 800 seconds, stale routes will be removed from the BGP table. If no Route-Refresh EOR message is generated after 800 seconds, one is generated.

```
router bgp 65000
 bgp refresh stalepath-time 800
 bgp refresh max-eor-time 800
```

Additional References

Related Documents

Related Topic	Document Title
Cisco IOS commands	Cisco IOS Master Command List, All Releases
BGP commands	Cisco IOS IP Routing: BGP Command Reference

Technical Assistance

Description	Link
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.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for BGP Enhanced Route Refresh

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. An account on Cisco.com is not required.

Table 1: Feature Information for BGP Enhanced Route Refresh

Feature Name	Releases	Feature Information
BGP Enhanced Route Refresh	15.2(3)T	The BGP Enhanced Route Refresh feature provides a way for BGP to find route inconsistencies, and in that unlikely event, to synchronize BGP peers without a hard reset. The following commands were introduced: • **bgp refresh max-eor-time** • **bgp refresh stalepath-time**