BGP Address-Family (IPv4/IPv6) Configuration Mode Commands

The Border Gateway Protocol (BGP) Address-Family (IPv4/IPv6) Configuration Mode is used to configure the IPv4 and IPv6 address family information.

**Command Modes**

Exec > Global Configuration > Context Configuration > BGP Configuration > BGP Address-Family Configuration

```
configure > context context_name > router bgp as_number > address-family address_family_type
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-bgp-af-v6)#
```

**Important**

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

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**end**

Exits the current configuration mode and returns to the Exec mode.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Syntax Description**

end
**exit**

Exits the current mode and returns to the parent configuration mode.

**Usage Guidelines**

Use this command to return to the Exec mode.

**maximum-paths**

Controls the maximum number of parallel external BGP (eBGP) or internal BGP (iBGP) routes that can be installed in a routing table.

**Syntax Description**

```
[ no ] maximum-paths { ebgp num_paths | ibgp num_paths }
no maximum-paths { ebgp | ibgp }
```

**no**

Disables maximum paths for the specified route type command.

**maximum-paths ebgp num_paths**

Specifies the maximum number of parallel External Border Gateway Protocol routes as an integer from 1 through 10.

**maximum-paths ibgp num_paths**

Specifies the maximum number of parallel Internal Border Gateway Protocol routes as an integer from 1 through 10.
Important

If configured under the router-bgp-mode, multipath is enabled only for the prefixes learnt in the default-vrf. There is no support for vpnv4 prefixes even though multipath is turned on for the default-vrf.

If configured under the address-family-vrf-mode, multipath is enabled only for prefixes learnt in the vrf.

Usage Guidelines

Use this command to forward packets over multiple paths. User can control the maximum number of parallel eBGP routes that can be installed in a routing table. Enabling multipath does not affect the best path selection in BGP. If multipath is enabled, all the paths with the same weight, local-preference, as-path length, origin, and multi-exit discriminator (MED) as the best path are added to the routing table.

Example

The following command disables forward of packets over multiple paths:

```plaintext
no maximum-paths ebgp
```

neighbor

Configures the IPv4/IPv6 Address Family for BGP routers that interconnect to non-broadcast networks.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > BGP Configuration > BGP Address-Family Configuration

```plaintext
configure > context context_name > router bgp as_number > address-family address_family_type
```

Entering the above command sequence results in the following prompt:

```plaintext
[context_name]host_name(config-bgp-af-v6)>
```

Syntax Description

```plaintext
[ no ] neighbor ip_address { activate | advertisement-interval adv_time | capability graceful-restart | default-originate [ route-map map_name ] | distribute-list dist_list { in | out } | ebgp-multihop [ max-hop number ] | encrypted password encyrp_password | fall-over bfd multihop | filter-list filt_list { in | out } | max-prefix max_num [ threshold thresh_percent ] [ warning-only ] | next-hop-self | password password | remote-as AS_num | remove-private-AS | restart-time rest_time | route-map map_name { in | out } | send-community { both | extended | standard } | shutdown | srp-activated-soft-clear | timers { connect-interval connect_interval | keepalive-interval keepalive_interval | holdtime-interval holdtime_interval | min-peer-holdtime-interval min_peer_hold_interval } | keepalive-interval keepalive_interval | holdtime-interval holdtime_interval | route-map map_name { in | out } | shutdown | srp-activated-soft-clear | timers { connect-interval connect_interval | keepalive-interval keepalive_interval | holdtime-interval holdtime_interval | min-peer-holdtime-interval min_peer_hold_interval } | keepalive-interval keepalive_interval | holdtime-interval holdtime_interval { connect-interval | min-peer-holdtime-interval min_peer_hold_interval | connect-interval connect_interval | min-peer-holdtime-interval min_peer_hold_interval | connect-interval connect_interval } | update-source ip_address | weight value }
```
no
Delete the specified parameter from the router configuration.

neighbor ip_address
Specifies the IP address of a BGP neighbor. ip_address must be in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

activate
Enables the exchange of routes with this neighbor.

advertisement-interval adv_time
Specifies the minimum interval (in seconds) between sending BGP routing updates. adv_time must be an integer from 0 through 600. Default: 30

capability graceful-restart
Configures graceful re-start attributes.

default-originate [ route-map map_name ]
Specifies the default originate routes to this neighbor
route-map map_name: Specifies the route-map that contains the criteria to originate default routes. map_name must be the name of an existing route-map in the current context.

distribute-list dist_list { in | out }
Filters updates to and from this neighbor based on a route access list. Default: No filtering is performed.
dist_list is the name or number of an existing route-access-list.
in: Indicates that incoming advertised routes should be filtered.
out: Indicates that outgoing advertised routes should be filtered.

ebgp-multihop [ max-hop number ]
Allows eBGP neighbors that are not on directly connected networks.
max-hop number: Specifies the maximum number of hops allowed to reach a neighbor as an integer from 1 through 255. Default hop count: 255

encrypted password encryp_password
Specifies the encrypted password that is used only inside configuration files. This is an alphanumeric string of 1 through 24 characters.

fall-over bfd multihop
Supports Bidirectional Forwarding Detection (BFD) multihop for fallover.
filter-list \textit{filt_list}\{ in | out \}

Establishes BGP filters based on an autonomous system (AS) path access list. \textit{filt_list} is name of an existing AS path access list.
\textbf{in}: Indicates that incoming advertised routes will be filtered.
\textbf{out}: Indicates that outgoing advertised routes will be filtered.

\textbf{max-prefix \textit{max_num}\[ threshold \textit{thresh_percent}\][ warning-only ]}

Specifies the maximum number of prefixes accepted from this peer. When the maximum is exceeded the neighbor connection is reset. \textit{max_num} is an integer from 1 through 4294967295. Default: No maximum prefix limit.
\textbf{threshold \textit{thresh_percent}:} Specifies a percentage value of when the BGP table is full. When this value is reached peer warnings are sent to the neighbor. \textit{thresh_percent} must be an integer from 1 through 100.
\textbf{warning-only:} Specifies that only a warning message is sent when the limit is exceeded. The neighbor connection is not reset.

\textbf{next-hop-self \textit{ip_address}}

Disables the next hop calculation for this neighbor.

\textbf{password \textit{password}}

Sets a password expressed as an alphanumeric string of 1 through 24 characters.

\textbf{remote-as \textit{AS_num}}

Specify the AS number of the BGP neighbor as an integer from 1 through 4294967295.

\textbf{remove-private-AS}

Removes the private AS number from outbound updates. Default: Do not remove the private AS number.

\textbf{restart-time \textit{rest_time}}

Specifies the maximum time (in seconds) required to for neighbor to restart as an integer from 1 through 3600.

\textbf{route-map \textit{map_name}\{ in | out \}}

Applies a route map to the neighbor. \textit{map_name} must be the name of an existing route-map in the current context.
\textbf{in:} Indicates that the route map applies to incoming advertisements.
\textbf{out:} Indicates that the route map applies to outgoing advertisements.

\textbf{send-community \{ both | extended | standard \}}

Sends the community attributes to a peer router (neighbor).
\textbf{both}: Sends standard and extended community attributes
\textbf{extended}: Sends extended community attributes.
standard: Sends standard community attributes.

shutdown
Administratively shuts down this neighbor. This disables exchanging routes or configuring parameters for this neighbor.

srp-activated-soft-clear
Enables BGP updates when SRP-enabled resources are modified.

timers { [ connect-interval connect_interval ] | [ keepalive-interval keepalive_interval holdtime-interval holdtime_interval ] }
Sets BGP timers for the specified neighbor.
connect-interval connect_interval: Specifies the connect timer (in seconds) as an integer from 0 through 65535. The default is 60 seconds.

keepalive-interval keepalive_interval: Specifies the frequency (in seconds) at which the current BGP router sends keepalive messages to its neighbor. keep_time must be an integer from 0 through 65535. The default is 30 seconds.

holdtime-interval holdtime_interval: Specifies the interval (in seconds) the router waits for a keepalive message before declaring a neighbor dead. hold_time must be an integer from 0 through 65535. The default is 90 seconds.

min-peer-holdtime-interval min_peer_hold_interval: Specifies the minimum acceptable hold time (in seconds) from peer for a keepalive message before declaring a neighbor dead. min_peer_hold_interval must be an integer from 0 through 65535. The default is 90 seconds.

update-source ip_address
Binds the specified IP address to the BGP socket that is used to communicate to the peer. ip_address is an IPv4 address in dotted-decimal notation.

In most cases you should set the update-source address to the address of the loopback interface in the current context. By doing this, the TCP connection does not go down until there is no route for the loopback address in the peering router.

weight value
Sets the default weight for routes from this neighbor as an integer from 0 through 65535. Default: 0

Usage Guidelines
Use this command to set parameters for communication with a specified neighbor. The chassis supports a maximum of 64 peers per context.

Important
A remote AS number must be specified for a neighbor before other parameters can be configured.
Example
The following command specifies that the neighbor at the IP address 192.168.100.25 has an AS number of 2000:

```
neighbor 192.168.100.25 remote-as 2000
```

The following command allows BGP neighbors that are a maximum of 27 hops away:

```
neighbor 192.168.100.25 ebgp-multihop max-hop 27
```

The following command sets the minimum interval between sending routing updates to 3 minutes (180 seconds):

```
neighbor 192.168.100.25 advertisement-interval 180
```

The following command sets the default weight for all routes from the specified neighbor to 100:

```
neighbor 192.168.100.25 weight 100
```

**network**

Configures and specifies a network to announce via BGP.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > BGP Configuration > BGP Address-Family Configuration

```
configure > context context_name > router bgp as_number > address-family address_family_type
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-bgp-af-v6)#
```

**Syntax Description**

```
[ no ] network ip_address/mask [ route-map map_name ]
```

**no**
Delete the specified network from the configuration for the BGP router.

**network ip_address/mask**
Specifies the IP address and netmask bits for the network to announce via BGP. *ip_address* is a network IP address in IPV4 dotted-decimal notation and *mask* is the number of subnet bits, representing a subnet mask in CIDR. These must be entered in the IPv4 dotted-decimal notation/subnet bits format.

**route-map map_name**
Filter routes through the specified route map before announcing the network. *map_name* specifies the name of the route-map to use as an alphanumeric string of 1 through 79 characters.
Usage Guidelines

Use this command to specify a network to announce via BGP.

Example

The following command announces the network 192.168.0.0 with a netmask of 16 via BGP:

```network 192.168.0.0/16```

The following command removes the network from the BGP router configuration:

```no network 192.168.0.0/16```

redistribute

Redistributes routes into BGP from another protocol as BGP neighbors.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > BGP Configuration > BGP Address-Family Configuration

```configure > context context_name > router bgp as_number > address-family address_family_type```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-bgp-af-v6)#
```

Syntax Description

```[ no ] redistribute { connected | ospf | rip | static } [ route-map map_name ]``` 

no

Remove the specified redistribution parameters from the BGP router configuration.

redistribute connected

Specifies that connected routes will be redistributed.

redistribute ospf

Specifies that Open Shortest Path First (OSPF) routes will be redistributed.

redistribute rip

Specifies that Routing Information Protocol (RIP) routes will be redistributed. (RIP is not supported at this time.)

redistribute static

Specifies that static routes will be redistributed.
route-map map_name
Filters routes through the specified route map before redistribution. map_name specifies the name of the route-map to use as an alphanumeric string of 1 through 79 characters.

Usage Guidelines
Use this command to specify what routes this BGP router should redistribute into BGP.

Example
The following command redistributes OSPF routes after filtering them through the route map named Map1:
redistribute ospf route-map Map1
The following command removes the redistribution of OSPF routes from the router's configuration:
no redistribute ospf route-map Map1

timers bgp
Enables or disables an aggressive minimum BGP route advertisement interval (MinRtAdvInterval) for ICSR configurations.

Product
All products that support ICSR

Privilege
Security Administrator, Administrator

Command Modes
Exec > Global Configuration > Context Configuration > BGP Configuration > BGP Address-Family Configuration
configure > context context_name > router bgp as_number > address-family address_family_type
Entering the above command sequence results in the following prompt:
[context_name] host_name(config-bgp-af-v6)#

Syntax Description
[ no ] timers bgp icsr-aggr-advertisement-interval seconds

no
Disables this aggressive ICSR BGP advertisement interval.

seconds
Sets the number of seconds as an integer from 0 to 30. Default: 0.

Usage Guidelines
Use this command to configure an aggressive ICSR BGP advertisement interval (MinRtAdvInterval). The default value is 0. If set as 0, the aggressive advertisement interval is disabled.

The MinRtAdvInterval can be uniquely set for each address family.

After ICSR switchover, BGP will set the advertisement-interval for each AFI/SAFI (Address Family Identifier/Subsequent Address Family Identifier) supported by the peer to the configured value. BGP updates will be advertised to the peer based on this interval.
Example
The following command sets the MinRtAdvInterval for this address family to 1 second:

```
timers bgp icsr-aggr-advertisement-interval 1
```