

BGP Terminology and Command Reference

BGP Command Reference

To debug BGP:

```
Router#debug ip bgp
```

To clear BGP:

```
Router#clear ip bgp *
```

To configure BGP via IOS:

```
Router(config)#router bgp [as-number]
Router(config-router)#neighbor [neighbor ip address] remote-as [neighbor ASN]
Router(config-router)#network [network ip address] mask [subnet mask]
```

```
Router(config-router)# bgp router-id [router ID]
Router(config-router)#redistribute connected
Router(config-router)# address-family IPv4 unicast
Router(config-router)# neighbor [neighbor ip address] activate
Router(config-router)# neighbor [ip address] next-hop-self all
```

To configure BGP via IOS XR:

```
Router(config)#router bgp [as-number]
Router(config-bgp)# bgp router-id [router ID]
Router(config-bgp)#address-family ipv4 unicast
Router(config-bgp)#neighbor [neighbor IP address]
Router(config-bgp-nbr)# remote-as [neighbor AS number]
Router(config-bgp-nbr)# address-family IPv4 unicast
Router(config-bgp-nbr-af)#route-policy [policy-name] [in | out]
```

NOTE: commit the changes afterwards.

To configure BGP via NS-OS:

```
Switch(config)#license grace-period
Switch(config)#feature bgp

Switch(config)#router bgp [as-number]
Switch(config-bgp)# router-id [router ID]
Switch(config-bgp)#address-family ipv4 unicast
Switch(config-bgp)#neighbor [neighbor IP address] remote-as [neighbor AS number]
Switch(config-bgp-nbr)# address-family IPv4 unicast
```

To configure BGP with IPv6 addresses:

```
Router(config)#ipv6 unicast-routing
Router(config)#router bgp [as-number]
Router(config-router)# bgp router-id [router ID]
Router(config-router)#neighbor [neighbor ip address] remote-as [neighbor ASN]

Router(config-router)# address-family ipv6
Router(config-router-af)#neighbor [neighbor ip address] activate
Router(config-router-af)#redistribute connected
```

Show commands:

```
Router#show ip route bgp
Router#show ipv6 route bgp

Router#show ip bgp summary
Router#show bgp [ipv4 / ipv6] unicast summary

Router#show ip bgp
Router#show bgp [ipv4 / ipv6] unicast
Router#show bgp [ipv4 / ipv6] unicast [ip address]

Router#show bgp neighbor
Router#show bgp [ipv4 / ipv6] unicast neighbor

Router#show ip bgp neighbor [neighbor IP] advertised-routes
Router#show bgp [ipv4 / ipv6] unicast neighbor [ip address] advertised-routes
```

Lab/Demo

BGP route manipulation:

```
Router(config)#ip prefix-list PREF20 permit 20.0.0.0/24
Router(config)#route-map MAP20 permit 10
Router(config-route-map)# match ip address prefix-list PREF20
Router(config-route-map)# set weight 9999
Router(config)#route-map MAP20 permit 20

Router(config)# router bgp 65004
Router(config-router)#neighbor 34.34.34.1 route-map MAP20 in

Router#clear ip bgp *
Router#show bgp ipv4 unicast
```

BGP Path Attributes

Attribute	Preference	First Letter	Mnemonic
Weight	Higher	W	We
Local_pref	Higher	L	Love
Originate	Local vs. aggregate	O	Oranges
AS_path	Lower	A	As
Origin type	IGP vs. EGP vs. ?	O	Oranges
MED	Lower	M	Mean
Paths	eBGP vs. iBGP	P	Pure
Router-ID	Lower	R	Refreshment

BGP States



Links and References

IANA/NRO:

<https://www.iana.org/assignments/as-numbers/as-numbers.xhtml>

<https://www.nro.net/about/rirs/>

RFCs:

<https://www.rfc-editor.org/rfc/rfc1654.txt>

<https://www.rfc-editor.org/rfc/rfc4271>

<https://www.rfc-editor.org/info/rfc4893>

CISCO References:

<https://www.ciscopress.com/store/troubleshooting-bgp-a-practical-guide-to-understanding-9781587144646>

<https://www.cisco.com/c/en/us/support/docs/ip/border-gateway-protocol-bgp/22166-bgp-trouble-main.html>