# Configure disable-peer-as-check in BGP on Cisco Nexus Switches

## Contents

## Introduction

This document describes the disable-peer-as-check command in Border Gateway Protocol (BGP) on Cisco Nexus family of Switches which run the NX-OS Operating System.

## Prerequisites

### Requirements

Cisco recommends that you have knowledge of these topics:

- Nexus NX-OS Software.
- BGP Routing Protocol.

### Components Used

The information in this document is based on these software and hardware versions:

- Cisco Nexus 7000
- NXOS version 7.3(0)D1(1)

This document is not restricted to specific software and hardware versions.The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

## Configure

When a network prefix is advertised to an eBGP peer, it's Autonomous System (AS) is always prepended last to the BGP's AS_PATH attribute list.

By default, Cisco Nexus NX-OS based Switches do not advertise network prefixes to eBGP peers whose AS is already found last in the BGP's network prefix AS_PATH attribute.

This behavior differs from Cisco IOS® (and Cisco IOS®-XE) based Routers and Switches where network prefixes are still advertised to eBGP peers even when the peer's AS is already in the network prefix AS_PATH attribute.

In this case, the BGP loop prevention mechanism discards the network prefix (by default) on the receiver peer and triggers an error message similar to "DENIED due to: AS-PATH contains our own AS" only when the appropriate debugs are enabled.

> **Note**: Cisco IOS® XR based Routers behaves similarly to NX-OS by default. In Cisco IOS® XR, the command **as-path-loopcheck out disable** can be used to modify this behavior.

## Network Diagram
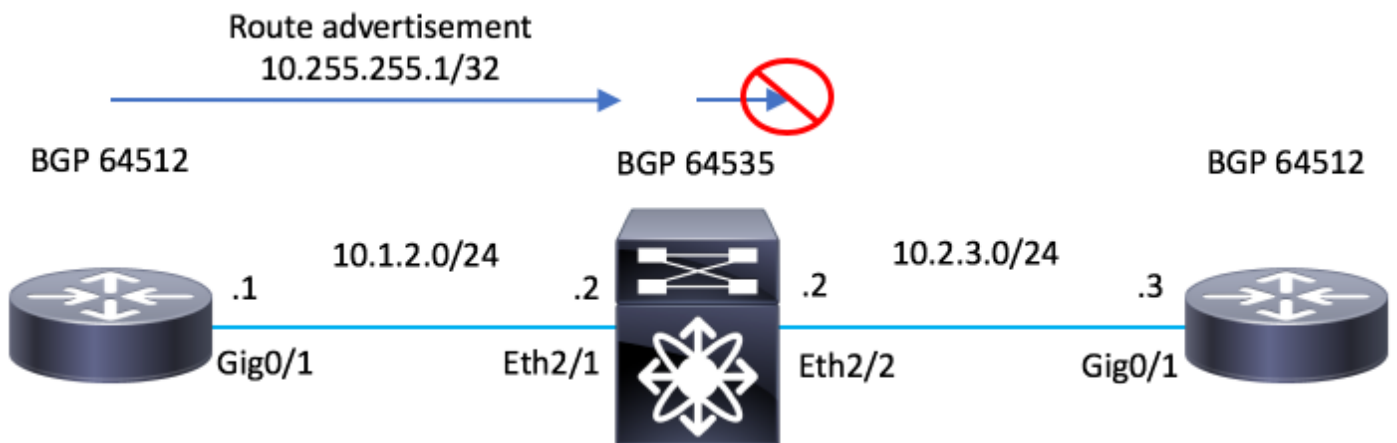


## Configurations

### R1 - Cisco IOS®

```
configure terminal
!
hostname R1
!
interface Loopback0
 ip address 10.255.255.1 255.255.255.255
!
interface GigabitEthernet0/1
 ip address 10.1.2.1 255.255.255.0
 no shutdown
!
router bgp 64512
 bgp log-neighbor-changes
 network 10.255.255.1 mask 255.255.255.255
 neighbor 10.1.2.2 remote-as 65535
```

```
!
end
```

## N7K-2 - Nexus NX-OS

```
configure terminal
!
hostname N7K-2
!
feature bgp
!
interface Ethernet2/1
  no switchport
  ip address 10.1.2.2/24
  no shutdown

interface Ethernet2/2
  no switchport
  ip address 10.2.3.2/24
  no shutdown
!
router bgp 65535
  address-family ipv4 unicast
  neighbor 10.1.2.1
    remote-as 64512
    address-family ipv4 unicast
  neighbor 10.2.3.3
    remote-as 64512
    address-family ipv4 unicast
!
end
```

## R3 - Cisco IOS®

```
configure terminal
!
hostname R3
!
interface GigabitEthernet0/1
 ip address 10.2.3.3 255.255.255.0
 no shutdown
!
```

```
router bgp 64512
 bgp log-neighbor-changes
 neighbor 10.2.3.2 remote-as 65535
!
end
```

# Verify

Use this section in order to confirm that your configuration works properly.

The absence of the **disable-peer-as-check** command prevents N7K-2 which runs NX-OS in order to advertise the prefix 10.255.255.1/32 to Router R3 since R3's AS (64512) is found last in the AS_PATH attribute.

> **Note**: The command **disable-peer-as-check** is disabled by default in the configuration. You must manually add the command in order to enable the feature.

When N7K-2 advertises the 10.255.255.1/32 to R3, it includes AS 64512 last in the AS_PATH attribute.

This AS 64512 is the same AS configured in R3.

### N7K-2 - Nexus NX-OS

```
N7K-2# show bgp ipv4 unicast
BGP routing table information for VRF default, address family IPv4 Unicast
BGP table version is 17, local router ID is 10.1.2.2
Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, *-valid, >-best
Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I-i
njected
Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup

   Network          Next Hop          Metric      LocPrf     Weight Path
*>e10.255.255.1/32   10.1.2.1              0                     0 64512 i

N7K-2#
```

Observe that on R3, the debug command **debug bgp ipv4 unicast** has been enabled.

In order to further confirm that the route is not received, the command **clear bgp ipv4 unicast * soft** is executed to force the routes to be exchanged again. R3 Routes does not receive the route.

### R3 - Cisco IOS®

```
R3#debug bgp ipv4 unicast
BGP debugging is on for address family: IPv4 Unicast
R3#
R3#clear bgp ipv4 unicast * soft R3# *Jul 15 19:22:36.427: BGP: 10.2.3.2 sending REFRESH_REQ(5) for afi
1/1, refresh code is 0 R3#
```

The command **disable-peer-as-check** must be enabled on N7K-2 so it can advertise the network

prefix to R3.

## N7K-2 - Nexus NX-OS

```
N7K-2# conf t
Enter configuration commands, one per line.  End with CNTL/Z.
N7K-2(config)# router bgp 65535
N7K-2(config-router)# neighbor 10.2.3.3
N7K-2(config-router-neighbor)# address-family ipv4 unicast
N7K-2(config-router-neighbor-af)# disable-peer-as-check
N7K-2(config-router-neighbor-af)#
```

With the **disable-peer-as-check** in place on N7K-2, the route is advertised to R3 but discarded by the expected BGP's loop prevention mechanism.

Observe "DENIED due to: AS-PATH contains our own AS" is seen in the debug output.

## R3 - Cisco IOS®

```
R3#
*Jul 15 19:29:06.440: BGP(0): 10.2.3.2 rcv UPDATE w/ attr: nexthop 10.2.3.2, origin i, originator 0.0.0
merged path 65535 64512, AS_PATH , community , extended community , SSA attribute
*Jul 15 19:29:06.442: BGPSSA ssacount is 0
*Jul 15 19:29:06.442: BGP(0): 10.2.3.2 rcv UPDATE about 10.255.255.1/32 -- DENIED due to: AS-PATH conta
our own AS;
R3#
```

> **Note**: If the AS of R3 is not found last in the AS_PATH attribute, N7K-2 does not need the command to advertise the route.

In thia example, another AS is prepended last in the AS_PATH attribute with the use of **route-map** and **set as-path prepend** commands. Now there is another AS before R3's AS in the AS_PATH.

The AS_PATH lists 65300 64512.

## N7K-2 - Nexus NX-OS

```
configure terminal
!
route-map TEST permit 10
  set as-path prepend 65300
!

N7K-2# conf t
Enter configuration commands, one per line.  End with CNTL/Z.
N7K-2(config)# router bgp 65535
N7K-2(config-router)#   neighbor 10.1.2.1
N7K-2(config-router-neighbor)#     address-family ipv4 unicast
N7K-2(config-router-neighbor-af)# route-map TEST in
N7K-2(config-router-neighbor-af)#
N7K-2#

N7K-2# show bgp ipv4 unicast
BGP routing table information for VRF default, address family IPv4 Unicast
BGP table version is 18, local router ID is 10.1.2.2
Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, *-valid, >-best
Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I-injected
Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup
```

```
    Network            Next Hop          Metric    LocPrf    Weight Path
*>e10.255.255.1/32     10.1.2.1               0                   0 65300 64512 i

N7K-2#
```

Observe how N7K-2 advertised the route in this case without the need of **disable-peer-as-check.**

### N7K-2 - Nexus NX-OS

```
N7K-2# sh run bgp

!Command: show running-config bgp
!Time: Mon Jul 15 21:28:59 2019

version 7.3(0)D1(1)
feature bgp

router bgp 65535
  address-family ipv4 unicast
  neighbor 10.1.2.1
    remote-as 64512
    address-family ipv4 unicast
      route-map TEST in
  neighbor 10.2.3.3
    remote-as 64512
    address-family ipv4 unicast


N7K-2#
```

Notice "DENIED due to: AS-PATH contains our own AS" is seen in the debug output on R3.

### R3 - Cisco IOS®

```
R3#show debug
IP routing:
  BGP debugging is on for address family: IPv4 Unicast
  BGP updates debugging is on for address family: IPv4 Unicast

R3#
R3#clear bgp ipv4 unicast * soft
R3#
*Jul 15 21:33:11.309: BGP: 10.2.3.2 sending REFRESH_REQ(5) for afi/safi: 1/1, refresh code is 0
*Jul 15 21:33:12.312: BGP(0): 10.2.3.2 rcv UPDATE w/ attr: nexthop 10.2.3.2, origin i, originator 0.0.0
merged path 65535 65300 64512, AS_PATH , community , extended community , SSA attribute
*Jul 15 21:33:12.313: BGPSSA ssacount is 0
*Jul 15 21:33:12.313: BGP(0): 10.2.3.2 rcv UPDATE about 10.255.255.1/32 -- DENIED due to: AS-PATH conta
our own AS;
R3#
```

# Troubleshoot

This section provides information you can use in order to troubleshoot your configuration.

In order to confirm the BGP configuration requires the **disable-peer-as-check** command on NX-OS, turn on these debugs.

```
debug-filter bgp neighbor <eBGP_NEIGHBOR>
debug-filter bgp prefix <ROUTE_TO_BE_ADVERTISED>
debug bgp updates
debug logfile <FILE_NAME>
```

Observe that a message similar to "10.2.3.3 10.255.255.1/32 path-id 1 not sent to peer due to: advertising AS" is generated when there is a request to re-send the route.

### N7K-2 - Nexus NX-OS

```
N7K-2# debug-filter bgp neighbor 10.2.3.3
N7K-2# debug-filter bgp prefix 10.255.255.1/32
N7K-2# debug bgp updates
N7K-2#
N7K-2# debug logfile bgpdebug.log

N7K-2# show debug logfile bgpdebug.log
2019 Jul 15 21:38:12.586085 bgp: 65535 [7848] (default) UPD: [IPv4 Unicast] Continuing update run for p
10.2.3.3 (#0)
2019 Jul 15 21:38:12.586129 bgp: 65535 [7848] (default) UPD: [IPv4 Unicast] consider sending 10.255.255
to peer 10.2.3.3, path-id 1, best-ext is off
2019 Jul 15 21:38:12.586145 bgp: 65535 [7848] (default) UPD: [IPv4 Unicast] 10.2.3.3 10.255.255.1/32 pa
1 not sent to peer due to: advertising AS
2019 Jul 15 21:38:12.586160 bgp: 65535 [7848] (default) UPD: [IPv4 Unicast] 10.2.3.3: walked 0 nodes an
packed 0/0 prefixes
2019 Jul 15 21:38:12.586177 bgp: 65535 [7848] (default) UPD: [IPv4 Unicast] Found marker dest 0xf35349f
xmitlist for peer 10.2.3.3 (sent prefixes: 0)
2019 Jul 15 21:38:12.586200 bgp: 65535 [7848] (default) UPD: [IPv4 Unicast] Created EOR marker UPDATE m
(len 23) to peer 10.2.3.3 afer sending 0 routes
2019 Jul 15 21:38:12.586213 bgp: 65535 [7848] (default) UPD: [IPv4 Unicast] (#24) Suspending update run
peer 10.2.3.3 (#24)
N7K-2#
```

Once done, disable the debugs with these commands:

```
undebug all
no debug-filter all
clear debug logfile <FILE_NAME>
```