Contents

Introduction

This document describes the method to redistribute iBGP route (Internal Border Gateway Protocol) into OSPF(Open Shortest Path First) on Nexus platforms.

Prerequisites

Requirements

Cisco recommends that you have basic knowledge of BGP(Border Gateway Protocol) and OSPF Routing Protocols.

Components Used

This document is restricted to NX-OS software and Nexus family of switches.

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, make sure that you understand the potential impact of any command.

Background Information

On Nexus platform, when redistribution from BGP to OSPF protocol is done, by default only EBGP routes are redistributed. In order to redistribute the Internal BGP routes a route-map needs to be configured and applied in redistribute command under OSPF configuration.

Configure

Network Diagram

Following image would be used as as sample topology for rest of the document.
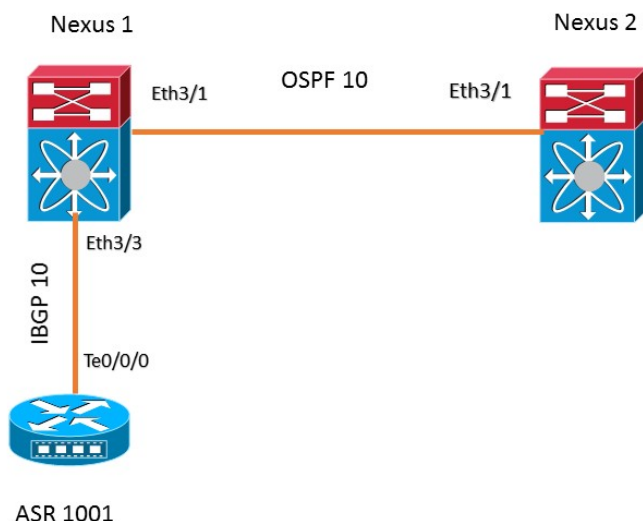
In this example topology, OSPF neighborship is configured between the two Nexus devices. ASR1001 router is having iBGP peering with Nexus 1. Nexus 1 learns prefix 192.168.1.0/24 from ASR 1001 through iBGP which is redistributed into OSPF process 10 to be sent to Nexus 2.

ASR1001

Following is the configuration on ASR1001 router:

Nexus1

Nexus2

Verify

This sections describe the output of prefix in Nexus1 and Nexus2 before and after applying the comamnd "match route-type internal".

Before "Match Route-Type Internal" Command Is Applied

The prefix 192.168.1.0/24 learned in Nexus 1 from ASR1001 through iBGP .

```
Nexus1# sh ip bgp
BGP routing table information for VRF default, address family IPv4 Unicast
BGP table version is 4, local router ID is 10.10.12.2
```

```
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
*>i192.168.1.0/24    10.10.12.1               0        100          0 i
```
Based on the below configuration in Nexus1 the iBGP route is redistributed into OSPF process 10 .

```
Nexus1# sh ip bgp
BGP routing table information for VRF default, address family IPv4 Unicast
BGP table version is 4, local router ID is 10.10.12.2
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
*>i192.168.1.0/24    10.10.12.1               0        100          0 i
```
Here the route-map is without the statemanet "match route-type internal". As shown below, the prefix 192.168.1.0/24 is not found in routing table of Nexus 2.

```
Nexus2# show ip route 192.168.1.0
IP Route Table for VRF "default"
'*' denotes best ucast next-hop
'**' denotes best mcast next-hop
'[x/y]' denotes [preference/metric]
'%<string>' in via output denotes VRF <string>

Route not found
```
Also the prefix 192.168.1.0/24 is not available in OSPF database in Nexus 1.

```
Nexus1# show ip ospf database external 192.168.1.0
      OSPF Router with ID (2.2.2.2) (Process ID 10 VRF default)
```

After "Match Route-Type Internal" Command Is Applied

The statement "match route-type" is added to the route-map iBGP2OSPF now:

```
!
route-map iBGP2OSPF permit 10
match ip address prefix-list iBGP2OSPF
match route-type internal
!
```
After adding the stament, the output on Nexus1 shows the prefix 192.168.1.0/24 is present in OSPF database.

```
Nexus1# show ip ospf database external 192.168.1.0
      OSPF Router with ID (2.2.2.2) (Process ID 10 VRF default)

            Type-5 AS External Link States

Link ID         ADV Router      Age        Seq#       Checksum Tag
192.168.1.0     2.2.2.2         20         0x80000002 0xa6ad    10
```
The route 192.168.1.0/24 is now present in Routing table of Nexus2 as expected:

```
Nexus2# show ip route 192.168.1.0
IP Route Table for VRF "default"
'*' denotes best ucast next-hop
```

```
'**' denotes best mcast next-hop
'[x/y]' denotes [preference/metric]
'%<string>' in via output denotes VRF <string>

192.168.1.0/24, ubest/mbest: 1/0
    *via 10.10.23.2, Eth3/1, [110/1], 00:01:11, ospf-10, type-2, tag 10
```