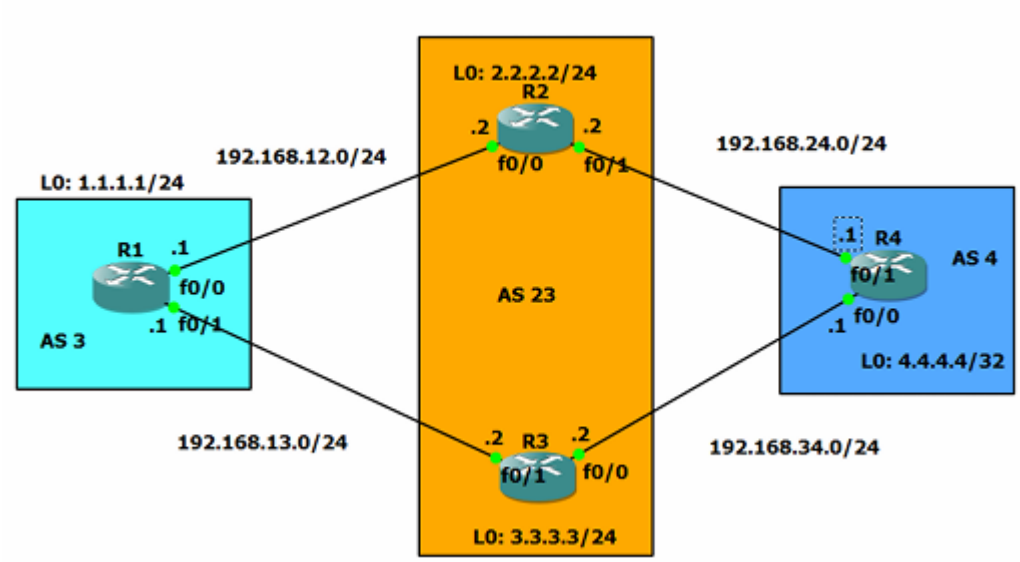
prac 7 : Implement the Concept of BGP AS Path Attribute



R1#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R1(config)#int Fa0/0

R1(config-if)#ip add 192.168.2.1 255.255.255.0

R1(config-if)#no shut

R1(config-if)#ex

R1(config)#

*Mar 1 00:01:55.851: LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up

*Mar 1 00:01:56.851: LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

R1(config)#int fa 0/0

R1(config-if)#ip add 192.168.12.1 255.255.255.0

R1(config-if)#no shut

R1(config-if)#ex

R1(config)#int fa 0/1

R1(config-if)#ip add 192.168.13.1 255.255.255.0

R1(config-if)#no shut

R1(config-if)#ex

R1(config)#

*Mar 1 00:03:11.843: LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up

*Mar 1 00:03:12.843: LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

R1(config)#int Loopback 0

R1(config-if)#ip add 1.1.1.1 255.255.255.0

R1(config-if)#no shut

R1(config-if)#ex

R1(config)#

*Mar 1 00:03:31.879: LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to up

R1(config)#

R2 interface info

R2#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R2(config)#int fa 0/0

R2(config-if)#ip add 192.168.12.2 255.255.255.0

R2(config-if)#no shut

R2(config-if)#ex

R2(config)#

*Mar 1 00:03:37.159: LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up

*Mar 1 00:03:38.159: LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

R2(config)#int fa 0/1

R2(config-if)#ip add 192.168.24.2 255.255.255.0

R2(config-if)#no shut

R2(config-if)#ex

R2(config)#

*Mar 1 00:04:00.095: LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up

*Mar 1 00:04:01.095: LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

R2(config)#int Loopback 0

R2(config-if)#ip add 2.2.2.2 255.255.255.0

R2(config-if)#no shut

R2(config-if)#ex

R2(config)#

*Mar 1 00:04:11.371: LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to up

R2(config)#

R3 interface info

R3(config)#int fa0/0

R3(config-if)#ip add 192.168.12.2 255.255.255.0

R3(config-if)#no shut

R3(config-if)#ex

R3(config)#

*Mar 1 00:12:23.763: %LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up

*Mar 1 00:12:24.763: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

R3(config)#int fa 0/1

R3(config-if)#no shut

R3(config-if)#ex

R3(config)#

R3(config)#int Loopback0

*Mar 1 00:13:11.955: %LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to up

R3(config-if)#ip add 3.3.3.3 255.255.255.0

R3(config-if)#no shut

R3(config-if)#ex

R3(config)#

R4 interface

```
R4#conf t
Enter configuration commands, one per line. End with CNTL/Z
R4(config)#int fa0/0
R4(config-if)#ip add 192.168.34.1 255.255.255.0
R4(config-if)#no shut
R4(config-if)#ex
R4(config)#
*Mar  1 00:10:12.215: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar  1 00:10:13.215: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
R4(config)#int fa1/1
R4(config-if)#ip add 192.168.24.1 255.255.255.0
R4(config-if)#no shut
R4(config-if)#ex
R4(config)#
*Mar  1 00:10:33.075: %LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
*Mar  1 00:10:34.075: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
R4(config)#int Loopback0
R4(config-if)#ip add
*Mar  1 00:10:46.379: %LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to up
R4(config-if)#ip add 4.4.4.4 255.255.255.0
R4(config-if)#no shut
R4(config-if)#ex
R4(config)#
```

Show ip route R1

```
R1#show ip route

Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route
Gateway of last resort is not set
     192.168.12.0/24 is directly connected, FastEthernet0/0
     1.0.0.0/24 is subnetted, 1 subnets
C       1.1.1.0 is directly connected, Loopback0
     192.168.13.0/24 is directly connected, FastEthernet0/1
```

Show ip Route R2

```
R2#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, candidate default, U - per-user static route
ODR, P - periodic downloaded static route

Gateway of last resort is not set

C 192.168.12.0/24 is directly connected, FastEthernet0/0
2.0.0.0/24 is subnetted, 1 subnets
C 2.2.2.0 is directly connected, Loopback0
C 192.168.23.0/24 is directly connected, FastEthernet0/1
R2#
```

Show ip route R3

```
R3#
*Mar 1 00:22:12.355: %SYS-5-CONFIG_I: Configured from console by console
R3#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
```

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, candidate default, U - per-user static route
ODR, P - periodic downloaded static route

Gateway of last resort is not set

3.0.0.0/24 is subnetted, 1 subnets
C 3.3.3.0 is directly connected, Loopback0
C 192.168.34.0/24 is directly connected, FastEthernet0/1
R3#

Show ip route R4

R4#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, candidate default, U - per-user static route
ODR, P - periodic downloaded static route

Gateway of last resort is not set

4.0.0.0/24 is subnetted, 1 subnets
C 4.4.4.0 is directly connected, Loopback0
C 192.168.24.0/24 is directly connected, FastEthernet0/0
C 192.168.34.0/24 is directly connected, FastEthernet0/1
R4#

Show ip int brief

R1

R1#show ip int brief

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/0	192.168.12.1	YES	manual	up	up
FastEthernet0/1	192.168.13.1	YES	manual	up	up
Loopback0	1.1.1.1	YES	manual	up	up

R2#show ip int brief

Interface	IP-Address	OK?	Method	Status	Protocol

FastEthernet0/0 192.168.12.2 YES manual up up

FastEthernet0/1 192.168.24.2 YES manual up up

Loopback0 2.2.2.2 YES manual up up

R3#show ip int brief

Interface IP-Address OK? Method Status Protocol

FastEthernet0/0 unassigned YES unset administratively down down

FastEthernet0/1 192.168.34.2 YES manual up up

Loopback0 3.3.3.3 YES manual up up

R4#show ip int brief

Interface IP-Address OK? Method Status Protocol

FastEthernet0/0 192.168.34.1 YES manual up up

FastEthernet0/1 192.168.24.1 YES manual up up

Loopback0 4.4.4.4 YES manual up up

BGP config

R1

R1(config)#router bgp 1

R1(config-router)#neigh

R1(config-router)#neighbor 192.168.12.2 remote-as 23

R1(config-router)#neighbor 192.168.13.2 remote-as 23

R1(config-router)#redis

R1(config-router)#redistribute conn

R1(config-router)#redistribute con

R1(config-router)#redistribute connected

R1(config-router)#end

R1#

R2

R2(config)#router bgp 23

```
R2(config-router)#neig
R2(config-router)#neighbor 192.168.12.1 remo
R2(config-router)#neighbor 192.168.12.1 remote
R2(config-router)#neighbor 192.168.12.1 remote-as 1
*Mar  1 00:35:52.283: BGP-5-ADJCHANGE: neighbor 192.168.12.1 Up
R2(config-router)#neighbor 192.168.24.1 remote-as 4
R2(config-router)#redistri
R2(config-router)#redistribute conn
R2(config-router)#redistribute connected
R2(config-router)#end
R2#
```

```
R3
R3(config)#router bgp 23
R3(config-router)#neighbor 192.168.13.1 remote-as 1
R3(config-router)#neighbor 192.168.34.1 remote-as 4
R3(config-router)#redistribute connected
R3(config-router)#end
R3#
*Mar  1 00:36:56.495:  %SYS-5-CONFIG_I: Configured from console by console
```

```
R4
R4(config)#router bgp 4
R4(config-router)#neighbor 192.168.24.2 remote-as 23
R4(config-router)#neighbor 192.168.34.2 remote-as 23
R4(config-router)#redistribute connected
R4(config-router)#end
R4#
```

Creating a route map

```
R3(config)#route-map MED-TEST permit 10
```

```
R3(config-route-map)#match ip address 1
R3(config-route-map)#set metric 500
R3(config-route-map)#exit
R3(config)#route-map MED-TEST permit 20
R3(config-route-map)#end
R3#

R3#show route-map
route-map MED-TEST, permit, sequence 10
 Match clauses:
  ip address (access-lists): 1
 Set clauses:
  metric 500
 Policy routing matches: 0 packets, 0 bytes
route-map MED-TEST, permit, sequence 20
 Match clauses:
 Set clauses:
 Policy routing matches: 0 packets, 0 bytes
```

Creating a access-list

```
R3(config)#access
R3(config)#access-list 1 permi
R3(config)#access-list 1 permit host 4.4.4.4
R3(config)#end
R3#
*Mar 1 00:54:30.391: %SYS-5-CONFIG_I: Configured from console by console
R3#show access-list
Standard IP access list 1
 10 permit 4.4.4.4
```

Applying the created route-map to bgp config .

Output:-

```
R3#show ip bgp
BGP table version is 3, local router ID is 3.3.3.3
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale
Origin codes: i - IGP, e - EGP, ? - incomplete

Network          Next Hop       Metric     LocPrf     Weight Path
* 3.3.3.0/24         0.0.0.0         0        32768        ?
> 192.168.34.0      0.0.0.0         0        32768        ?

R1#show ip bgp
BGP table version is 8, local router ID is 1.1.1.1
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale
Origin codes: i - IGP, e - EGP, ? - incomplete

Network          Next Hop       Metric     LocPrf     Weight Path
* 1.1.1.0/24        0.0.0.0         0        32768        ?
*> 2.2.2.0/24      192.168.12.2      0        0         23    ?
*> 4.4.4.0/24      192.168.12.2      0        0         23 4   ?
> 192.168.12.0     192.168.12.2      0        0         23    ?
> 192.168.13.0     0.0.0.0         0        32768        ?
*> 192.168.24.0    192.168.12.2      0        0         23    ?
> 192.168.34.0     192.168.12.2      0        0         23 4   ?
```