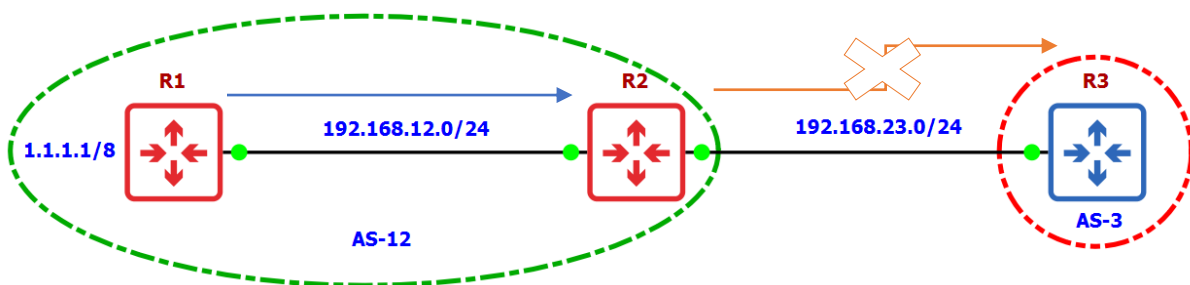


BGP Synchronization:

- o BGP will not advertise something that it learns from IBGP neighbor to EBGP neighbor.
- o If the prefix can't be validated in its IGP and by default, BGP synchronization is disabled.
- o The BGP Synchronization mostly applies to interactions between two (2) separate AS.
- o No synchronization command tells Routers that don't want them to "synchronize" iBGP.
- o A Route learned via BGP will not be used nor advertised to an external neighbor BGP.
- o And unless that same prefix is learned via an Interior Gateway Protocol (IGP) as well.
- o A BGP border Router will not propagate a BGP-learned prefix to an eBGP neighbor.
- o Unless that same IP prefix has been learned via an Interior Gateway Protocol (IGP).
- o The BGP synchronization rule refers to prefix synchronization between BGP and IGP.
- o If it is enabled, a BGP speakers will not advertise routes learned from an iBGP peer.
- o Unless the destination described in the route is also reachable through the local IGP.



R1 Basic Configuration

```
R1(config)# interface ethernet 0/0
R1(config-if)# ip address 192.168.12.1 255.255.255.0
R1(config-if)# no shutdown
R1(config-if)# exit
R1(config)# interface loopback 1
R1(config-if)# ip address 1.1.1.1 255.0.0.0
R1(config-if)# no shutdown
```

R2 Basic Configuration

```
R2(config)# interface ethernet 0/0
R2(config-if)# ip address 192.168.12.2 255.255.255.0
R2(config-if)# no shutdown
R2(config-if)# exit
R2(config)# interface ethernet 0/1
R2(config-if)# ip address 192.168.23.2 255.255.255.0
R2(config-if)# no shutdown
```

R3 Basic Configuration

```
R3(config)# interface ethernet 0/0
R3(config-if)# ip address 192.168.23.3 255.255.255.0
R3(config-if)# no shutdown
```

R1 BGP Configuration
R1(config)#router bgp 12 R1(config-router)#neighbor 192.168.12.2 remote-as 12 R1(config-router)#network 1.0.0.0 mask 255.0.0.0
R2 BGP Configuration
R2(config)#router bgp 12 R2(config-router)#neighbor 192.168.12.1 remote-as 12 R2(config-router)#neighbor 192.168.23.3 remote-as 3
R3 BGP Configuration
R3(config)#router bgp 3 R3(config-router)#neighbor 192.168.23.2 remote-as 12

R1 BGP configuration BGP Synchronization is disable by default.

```
R1#show running-config | sec bgp
router bgp 12
  bgp log-neighbor-changes
  network 1.0.0.0
  neighbor 192.168.12.2 remote-as 12
```

R2 BGP configuration BGP Synchronization is disable by default.

```
R2#show running-config | sec bgp
router bgp 12
  bgp log-neighbor-changes
  neighbor 192.168.12.1 remote-as 12
  neighbor 192.168.23.3 remote-as 3
```

BGP Synchronization is disable by default on R1 and R2 that's why R3 get R1 Routes 1.0.0.0

```
R3#show ip route
```

```
Gateway of last resort is not set
```

```
B    1.0.0.0/8 [20/0] via 192.168.23.2, 00:00:42
     192.168.23.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.23.0/24 is directly connected, Ethernet0/0
L    192.168.23.3/32 is directly connected, Ethernet0/0
```

R2 also getting R1 route in Routing table and BGP table as well.

```
R2#show ip route bgp
```

```
B    1.0.0.0/8 [200/0] via 192.168.12.1, 00:01:05
```

```
R2#show ip bgp
```

	Network	Next Hop	Metric	LocPrf	Weight	Path
*>i	1.0.0.0	192.168.12.1	0	100	0	i

R1 enable Synchronization
R1(config)#router bgp 12 R1(config-router)#synchronization
R2 enable Synchronization
R2(config)#router bgp 12 R2(config-router)#synchronization
R3 enable Synchronization
R2(config)#router bgp 3 R2(config-router)#synchronization

R3 is not receiving anymore R1 1.0.0.0 network in Routing table nor in BGP table.

R3#`show ip route bgp`

Codes: L - local, 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, H - NHRP, l - LISP
a - application route
+ - replicated route, % - next hop override

Gateway of last resort is not set

R2 is still receiving R1 route 1.0.0.0 in BGP table but not in Routing Table anymore, also R2 stop to advertise R1 routes to R3 Router.

R2#`show ip bgp`

BGP table version is 1, local router ID is 192.168.23.2
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
x best-external, a additional-path, c RIB-compressed,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

Network	Next Hop	Metric	LocPrf	Weight	Path
* i 1.0.0.0	192.168.12.1	0	100	0	i

R2#`show ip route bgp`

Codes: L - local, 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, H - NHRP, l - LISP
a - application route
+ - replicated route, % - next hop override

Gateway of last resort is not set

R2#