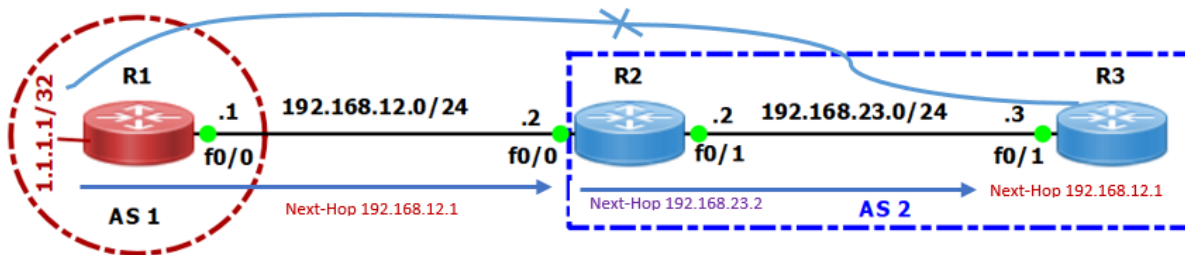


## BGP Next-Hop-Self:

- Internal BGP (IBGP) does not change the next hop IP address.
- By default, when a route is advertised to an EBGP outside of the AS.
- The router will make sure that next-hop attribute reflects its IP address.
- Border Gateway Protocol (BGP) Next-Hop-Self solve reachability problems.



### R1 Basic Configuration

```
R1(config)#interface f0/0
R1(config-if)#ip add 192.168.12.1 255.255.255.0
R1(config-if)#no shutdown

R1(config)#interface loopback 1
R1(config-if)#ip add 1.1.1.1 255.255.255.255
```

### R2 Basic Configuration

```
R2(config)#interface f0/0
R2(config-if)#ip add 192.168.12.2 255.255.255.0
R2(config-if)#no shutdown

R2(config)#interface f0/1
R2(config-if)#ip add 192.168.23.2 255.255.255.0
R2(config-if)#no shutdown
```

### R3 Basic Configuration

```
R3(config)#interface f0/1
R3(config-if)#ip add 192.168.23.3 255.255.255.0
R3(config-if)#no shutdown
```

## Routers Configuration

```
R1(config)#router bgp 1
R1(config-router)#neighbor 192.168.12.2 remote-as 2
R1(config-router)#network 1.1.1.1 mask 255.255.255.255
```

```
R2(config)#router bgp 2
R2(config-router)#neighbor 192.168.12.1 remote-as 1
R2(config-router)#neighbor 192.168.23.3 remote-as 2
```

```
R3(config)#router bgp 2
R3(config-router)#neighbor 192.168.23.2 remote-as 2
```

R2 has installed 1.1.1.1 in its BGP table and it is a valid route, the next hop is 192.168.12.1.

```
R2#show ip bgp
```

```
BGP table version is 2, 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
Origin codes: i - IGP, e - EGP, ? - incomplete
```

Network	Next Hop	Metric	LocPrf	Weight	Path
*> 1.1.1.1/32	192.168.12.1	0		0	1 i

R3 learns the prefix but unable to install it in the routing table.

```
R3#show ip bgp
```

```
BGP table version is 2, local router ID is 192.168.23.3
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
* i1.1.1.1/32	192.168.12.1	0	100	0	1 i

Solution is to advertise the network and put "Next-Hop-Self" command.

## R2 Configuration

```
R2(config)#router bgp 2
R2(config-router)#neighbor 192.168.23.3 next-hop-self
R2(config-router)#network 192.168.23.0 mask 255.255.255.0
```

Now after **Next-hop-self** R3 learn the prefix and install in routing table.

```
R3#show ip bgp
```

```
BGP table version is 4, local router ID is 192.168.23.3
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
*>i1.1.1.1/32	192.168.23.2	0	100	0	1 i
*>i192.168.23.0	192.168.23.2	0	100	0	i