```
R1
conf t
int e0/0
Desc conn to R2
ip add 10.12.1.1 255.255.255.0
no sh
int e0/1
Desc conn to R3
ip add 10.13.1.1 255.255.255.0
no sh
int lo0
ip add 1.1.1.1 255.0.0.0

router bgp 100
neig 10.12.1.2 remote-as 200
neig 10.13.1.3 remote-as 300
net 1.0.0.0

R2:
conf t
int e0/0
Desc conn to R1
ip add 10.12.1.2 255.255.255.0
no sh
int e0/1
Desc conn to R3
ip add 10.23.1.2 255.255.255.0
no sh
int lo0
ip add 2.2.2.2 255.0.0.0

router bgp 200
neig 10.12.1.1 remote-as 100
neig 10.23.1.3 remote-as 300
net 2.0.0.0


R3:
conf t
int e0/0
Desc conn to R1
ip add 10.13.1.3 255.255.255.0
no sh
int e0/1
Desc conn to R2
ip add 10.23.1.3 255.255.255.0
no sh
int lo0
ip add 3.3.3.3 255.0.0.0

router bgp 300
neig 10.13.1.1 remote-as 100
neig 10.23.1.2 remote-as 200
net 3.0.0.0

===========================================
Next hop:
-------------------
R2:
```

```
conf t
int e0/0
Desc conn to R1
ip add 10.12.1.2 255.255.255.0
no sh
int lo0
ip add 192.168.2.2 255.255.255.255
exit

router bgp 100
bgp router-id 2.2.2.2
neig 10.12.1.1 remote-as 100
net 192.168.2.2 mask 255.255.255.255
exit

R3:
conf t
int e0/0
Desc conn to R1
ip add 10.13.1.3 255.255.255.0
no sh
int lo0
ip add 192.168.3.3 255.255.255.255
int lo 1
ip add 3.3.3.3 255.255.255.255
exit

router bgp 100
bgp router-id 3.3.3.3
neig 1.1.1.1 remote-as 100
neig 1.1.1.1 update-source lo 1
net 192.168.3.3 mask 255.255.255.255
exit


ip route 1.1.1.1 255.255.255.255 10.13.1.1

======================================
R1:
conf t
int e0/0
Desc conn to R2
ip add  10.12.1.1 255.255.255.0
no sh
int e0/1
Desc conn to R3
ip add  10.13.1.1 255.255.255.0
no sh
int lo 0
ip add 1.1.1.1 255.255.255.255
int s2/0
Desc conn to R4 ebgp neig
ip add 10.14.1.1 255.255.255.0
no shut
int s2/1
Desc conn to R5 ebgp neig
ip add 10.15.1.1 255.255.255.0
no shut
int lo 1
```

```
ip add 192.168.1.1 255.255.255.255
exit

ip route 3.3.3.3 255.255.255.255 10.13.1.3
ip route 5.5.5.5 255.255.255.255 10.15.1.5

router bgp 100
bgp router-id 1.1.1.1
neig 10.12.1.2 remote-as 100
neig 3.3.3.3 remote-as 100
neig 3.3.3.3 update-source lo 0
neig 10.14.1.4 remote-as 400
neig 5.5.5.5 remote-as 500
neig 5.5.5.5 update-source lo 0
neig 5.5.5.5 ebgp-multihop
net 192.168.1.1 m 255.255.255.255


R4
conf t
int s2/0
Desc conn to R1 ebgp neig
ip add 10.14.1.4 255.255.255.0
no sh
int lo0
ip add 192.168.4.4 255.255.255.255

router bgp 400
bgp router-id 4.4.4.4
neig 10.14.1.1 remote-as 100
net 192.168.4.4 m 255.255.255.255
exit

R5:
conf t
int s2/0
Desc conn to R1 ebgp neig
ip add 10.15.1.5 255.255.255.0
no sh
int lo0
ip add 192.168.5.5 255.255.255.255
int lo 1
ip add 5.5.5.5 255.255.255.255

router bgp 500
bgp router-id 5.5.5.5
neig 1.1.1.1 remote-as 100
neig 1.1.1.1 update-source lo 1
neig 1.1.1.1 ebgp-multihop
net 192.168.5.5 m 255.255.255.255
exit

ip route 1.1.1.1 255.255.255.255 10.15.1.1

==========================================================
R2:      Network command on R1
     Network          Next Hop          Metric LocPrf Weight Path
 *>i 192.168.1.1/32   10.12.1.1              0     100      0 i
 *>  192.168.2.2/32   0.0.0.0                0          32768 i
```

```
 * i 192.168.4.4/32    10.14.1.4                     0    100       0 400 i
* i 192.168.5.5/32     5.5.5.5                       0    100       0 500 i

R2(config)#do sh ip bgp 192.168.4.4
BGP routing table entry for 192.168.4.4/32, version 0
Paths: (1 available, no best path)
  Not advertised to any peer
  Refresh Epoch 1
  400
    10.14.1.4 (inaccessible) from 10.12.1.1 (1.1.1.1)

R1:
router bgp 100
net 10.14.1.0 m 255.255.255.0
net 10.15.1.0 m 255.255.255.0
exit

R2:
*>i 192.168.4.4/32    10.14.1.4                      0    100       0 400 i

----------------------------------------------------------------------------
-----------------------------------------
Access-list/Route-Map

* i 192.168.5.5/32     5.5.5.5                        0    100       0 500 i

R2:
Access-list 1 permit  host 192.168.5.5

route-map RM-NH-CH permit 10
match ip add 1
set ip next-hop 10.12.1.1
route-map RM-NH-CH permit 20
exit

Router bgp 100
neig 10.12.1.1 route-map RM-NH-CH in
exit

do clear ip bgp * soft

do sh ip bgp s
*>i 192.168.5.5/32    10.12.1.1                       0    100       0 500 i

=========================================================
3.Nexthop-self on R1

* i 192.168.5.5/32     5.5.5.5                        0    100       0 50

192.168.5.5
Nexthop : 5.5.5.5
ASpath  :   500
origin     :  i

R1

router bgp 100
neig 3.3.3.3 next-hop-self
exit
```

```
do clear ip bgp * so

 *>i 192.168.5.5/32   1.1.1.1                    0    100      0 500 i


192.168.5.5
Nexthop : 1.1.1.1
ASpath  :  500
origin    :  i
```