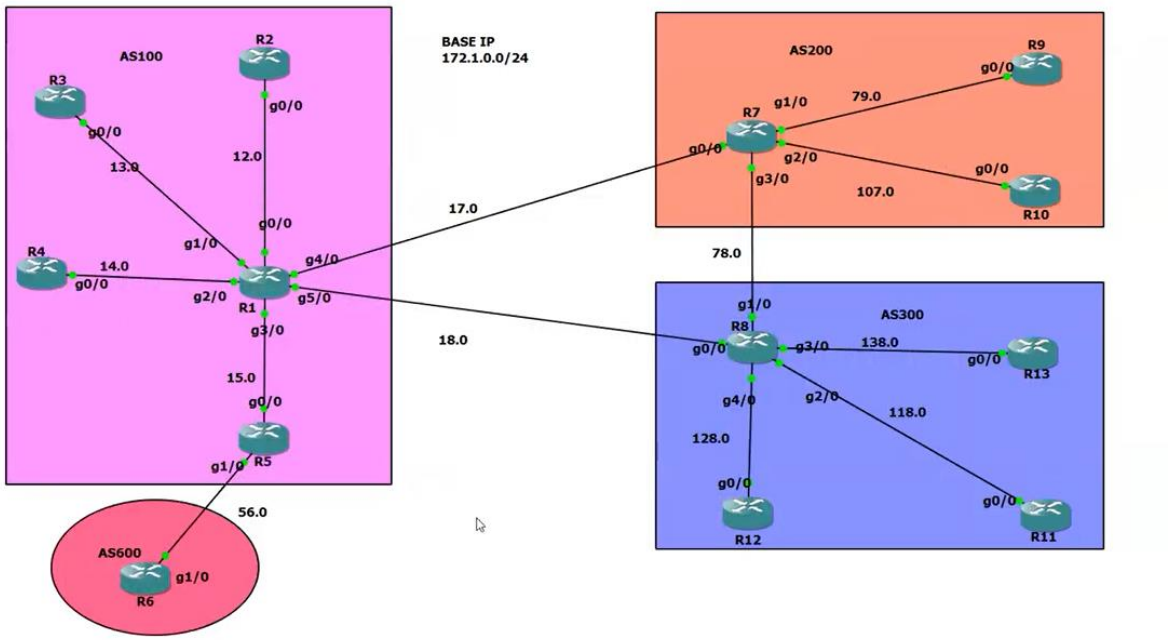
BGP Advance Concepts(Peer-group, Template, community-attribute)



****expect R1, R8 is not configured BGP and all others all configured BGP and basic ips and loopbacks**

#R8

```
router bgp 300
nei NH peer-group
nei NH remote-as 300
nei NH next-hop-self
nei NH route-reflector-client
nei 172.1.118.11 peer-group NH
nei 172.1.128.12 peer-group NH
nei 172.1.138.13 peer-group NH
nei 172.1.18.1 remote-as 100
nei 172.1.78.7 remote-as 200
net 172.1.18.0 mask 255.255.255.0
net 172.1.78.0 mask 255.255.255.0
net 172.1.118.0 mask 255.255.255.0
net 172.1.128.0 mask 255.255.255.0
net 172.1.138.0 mask 255.255.255.0
net 10.8.8.8 mask 255.255.255.255
exit
```

**** creating a peer will reduce the using of cmds multiple times (like next-hop-self on every network we can use under One Peer-group)**

#R1

```
router bgp 100
template peer-session NH
remote-as 100
exit
template peer-policy NH
next-hop-self
route-reflector-client
exit
nei 172.1.12.2 inherit peer-session NH
nei 172.1.12.2 inherit peer-policy NH
nei 172.1.13.3 inherit peer-session NH
nei 172.1.13.3 inherit peer-policy NH
nei 172.1.14.4 inherit peer-session NH
nei 172.1.14.4 inherit peer-policy NH
nei 172.1.15.5 inherit peer-session NH
nei 172.1.15.5 inherit peer-policy NH
nei 172.1.17.7 remote-as 200
nei 172.1.18.8 remote-as 300
net 172.1.12.0 mask 255.255.255.0
net 172.1.13.0 mask 255.255.255.0
net 172.1.14.0 mask 255.255.255.0
net 172.1.15.0 mask 255.255.255.0
net 172.1.17.0 mask 255.255.255.0
net 172.1.18.0 mask 255.255.255.0
net 10.1.1.1 mask 255.255.255.255
exit
```

#R2

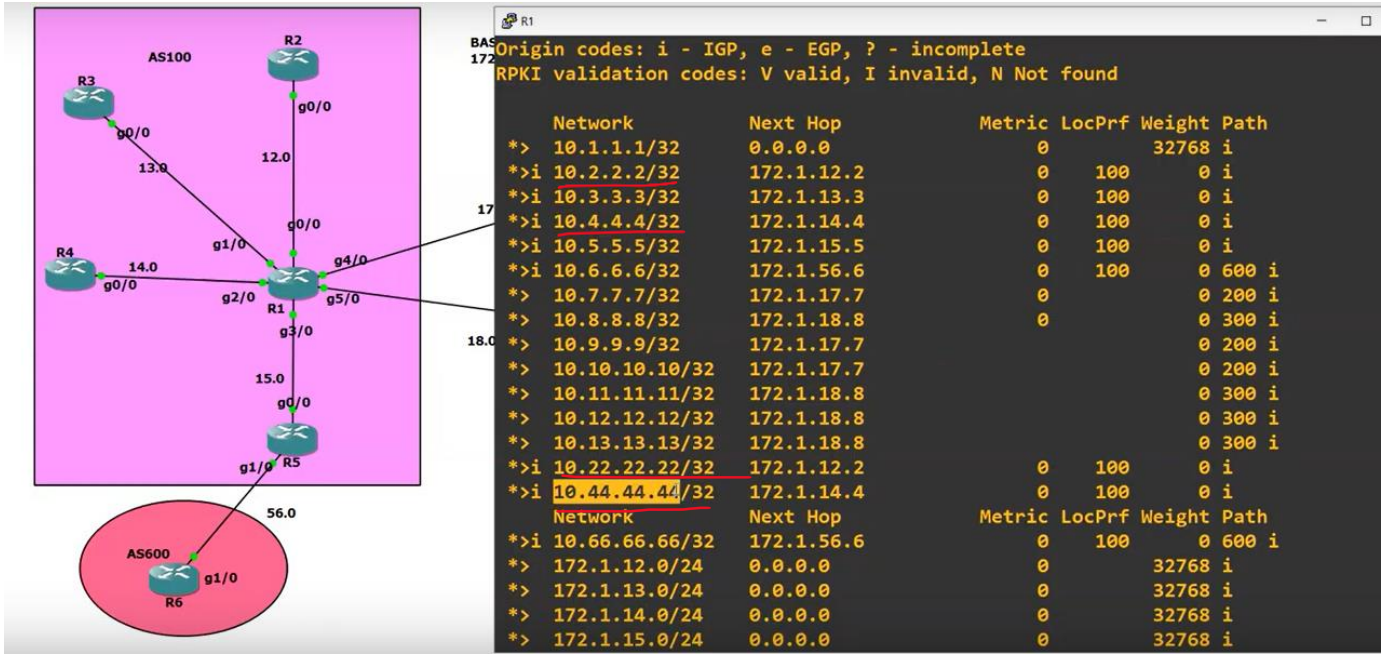
```
                    peers only)
  flap-statistics   Display flap statistics of the routes learned from
                    neighbor (eBGP peers only)
  paths             Display AS paths learned from neighbor
  policy            Display neighbor polices per address-family
  received          Display information received from a BGP neighbor
  received-routes   Display the received routes from neighbor
  routes            Display routes learned from neighbor
  |                 Output modifiers
  <cr>

R2#sh ip bgp neighbors 172.1.12.1  received-routes
% Inbound soft reconfiguration not enabled on 172.1.12.1
R2#config t
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#
R2(config)#router bgp 100
R2(config-router)#nei 172.1.12.1 soft
R2(config-router)#nei 172.1.12.1 soft-reconfiguration in
R2(config-router)#nei 172.1.12.1 soft-reconfiguration inbound ?
  <cr>

R2(config-router)#nei 172.1.12.1 soft-reconfiguration inbound
R2(config-router)#
```

** the router will default enabled for the inbound-list and outbound-list need to enabled by the manually ➔ CMD is….

#R1




```
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
 *>  10.1.1.1/32      0.0.0.0                  0         32768 i
 *>i 10.2.2.2/32      172.1.12.2               0    100      0 i
 *>i 10.3.3.3/32      172.1.13.3               0    100      0 i
 *>i 10.4.4.4/32      172.1.14.4               0    100      0 i
 *>i 10.5.5.5/32      172.1.15.5               0    100      0 i
 *>i 10.6.6.6/32      172.1.56.6               0    100      0 600 i
 *>  10.7.7.7/32      172.1.17.7               0             0 200 i
 *>  10.8.8.8/32      172.1.18.8               0             0 300 i
 *>  10.9.9.9/32      172.1.17.7                             0 200 i
 *>  10.10.10.10/32   172.1.17.7                             0 200 i
 *>  10.11.11.11/32   172.1.18.8                             0 300 i
 *>  10.12.12.12/32   172.1.18.8                             0 300 i
 *>  10.13.13.13/32   172.1.18.8                             0 300 i
 *>i 10.22.22.22/32   172.1.12.2               0    100      0 i
 *>i 10.44.44.44/32   172.1.14.4               0    100      0 i
     Network          Next Hop            Metric LocPrf Weight Path
 *>i 10.66.66.66/32   172.1.56.6               0    100      0 600 i
 *>  172.1.12.0/24    0.0.0.0                  0         32768 i
 *>  172.1.13.0/24    0.0.0.0                  0         32768 i
 *>  172.1.14.0/24    0.0.0.0                  0         32768 i
 *>  172.1.15.0/24    0.0.0.0                  0         32768 i
```

** we r concentrating on this 4-ip add

** that we telling to R2 advertise the internal ip to same AS not with external AS and ## community-group only applied to the self-generated traffic not receiving-traffic.

#R2

```
R2(config)#access-list 20 permit 10.2.2.2
R2(config)#
R2(config)#route-map COM permit 5
R2(config-route-map)#match ip add 20
R2(config-route-map)#set community ?
  <1-4294967295>  community number
  aa:nn           community number in aa:nn format
  gshut           Graceful Shutdown (well-known community)
  internet        Internet (well-known community)
  local-AS        Do not send outside local AS (well-known community)
  no-advertise    Do not advertise to any peer (well-known community)
  no-export       Do not export to next AS (well-known community)
  none            No community attribute

R2(config-route-map)#set community no-export
R2(config-route-map)#route-map COM permit 7
R2(config-route-map)#router bgp 100
R2(config-router)#nei 172.1.12.1 send-community
R2(config-router)#nei 172.1.12.1 route-map COM out
```

##

```
      Community: no-export
      rx pathid: 0, tx pathid: 0x0
R1#
```

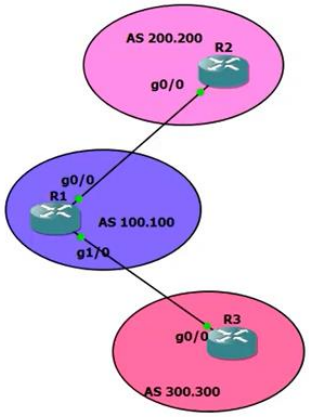
** now the result will no-export for 10.2.2.2

#R4

```
R4(config)#access-list 25 permit 10.44.44.44
R4(config)#route-map COM permit 4
R4(config-route-map)#match ip add 25
R4(config-route-map)#set community no-advertise
R4(config-route-map)#route-map COM permit 6
R4(config-route-map)#router bgp 100
R4(config-router)#nei 172.1.14.1 send-community
R4(config-router)#nei 172.1.14.1 route-map COM out
R4(config-router)#^Z
R4#clear
```

**** now it will filter the 10.44.44.44 ip address ((## R1 will maintain 10.44.44.44 on routing-table but it will not share will any neighbor with any internal members)**

BGP 4-Byte AS Config



**** config the basic ips and one loopback for each routers**

#R1

```
R1(config)#router bgp ?
  <1-4294967295>  Autonomous system number
  <1.0-XX.YY>     Autonomous system number

R1(config)#router bgp 100.100
R1(config-router)#address-family ipv4
R1(config-router-af)#nei 172.1.12.2 remote-as 200.200
R1(config-router-af)#nei 172.1.12.2 activet
                                        ^
% Invalid input detected at '^' marker.

R1(config-router-af)#nei 172.1.12.2 activate
R1(config-router-af)#nei 172.1.13.3 remote-as 300.300
R1(config-router-af)#nei 172.1.13.3 axctivate
                                    ^
% Invalid input detected at '^' marker.

R1(config-router-af)#nei 172.1.13.3 activate
R1(config-router-af)#
R1(config-router-af)#net 172.1.12.0 mask 255.255.255.0
R1(config-router-af)#net 172.1.13.0 mask 255.255.255.0
R1(config-router-af)#net 10.1.1.1 mask 255.255.255.255
R1(config-router-af)#exit
R1(config-router)#
```

**** now it is showing like this**

```
router bgp 6553700
 bgp log-neighbor-changes
 neighbor 172.1.12.2 remote-as 13107400
 neighbor 172.1.13.3 remote-as 19661100
 !
 address-family ipv4
  network 10.1.1.1 mask 255.255.255.255
  network 172.1.12.0 mask 255.255.255.0
  network 172.1.13.0 mask 255.255.255.0
  neighbor 172.1.12.2 activate
  neighbor 172.1.13.3 activate
 exit-address-family
R1(config-router)#
R1(config-router)#bgp as-no
R1(config-router)#bgp as no
R1(config-router)#bgp as ?
  dot  asdot notation
```

**after we will get this command

```
R1(config-router)#bgp asnotation dot
R1(config-router)#^Z
R1#
R1#sh ru
*Sep  6 20:56:48.007: %SYS-5-CONFIG_I: Configured from console by console
R1#sh run | sec bgp
ipv6 multicast rpf use-bgp
router bgp 100.100
 bgp asnotation dot
 bgp log-neighbor-changes
 neighbor 172.1.12.2 remote-as 200.200
 neighbor 172.1.13.3 remote-as 300.300
 !
 address-family ipv4
  network 10.1.1.1 mask 255.255.255.255
  network 172.1.12.0 mask 255.255.255.0
  network 172.1.13.0 mask 255.255.255.0
  neighbor 172.1.12.2 activate
  neighbor 172.1.13.3 activate
 exit-address-family
R1#
```

** we use activate cmd for (we use the d/f Address-family (unicast, Multicast (IPV4,IPV6,VPNV4,VPNV6) without using the activate we have chance lose some parameters that's way we use activate CMD)

** In address-family we have only idel option (no active)

```
Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State
/PfxRcd
172.1.12.2      4      200.200       0       0        1    0    0 never    Idle
172.1.13.3      4      300.300       0       0        1    0    0 never    Idle
R1#
```