

```
R4:
conf t
int e0/0
ip add 10.14.1.4 255.255.255.0
no sh
int lo0
ip add 10.4.4.4 255.255.255.0
exi
```

```
router bgp 100
  bgp router-id 4.4.4.4
  bgp log-neighbor-changes
  neighbor 10.14.1.1 remote-as 100
  !
  address-family ipv4
    bgp additional-paths receive
    network 10.4.4.0 mask 255.255.255.0
    neighbor 10.14.1.1 activate
  exit-address-family
```

```
R1:
conf t
int e0/0
ip add 10.12.1.1 255.255.255.0
no sh
int e0/1
ip add 10.13.1.1 255.255.255.0
no sh
int e0/2
ip add 10.14.1.1 255.255.255.0
no sh
int lo0
ip add 10.1.1.1 255.255.255.0
exi
```

```
router bgp 100
  bgp router-id 1.1.1.1
  bgp log-neighbor-changes
  bgp additional-paths select all
  bgp additional-paths send
  bgp inject-map AS300-IM exist-map AS300-Exist-map
  bgp inject-map AS200-IM exist-map AS200-Exist-map
  network 10.1.1.0 mask 255.255.255.0
  neighbor 10.12.1.2 remote-as 200
  neighbor 10.13.1.3 remote-as 300
  neighbor 10.14.1.4 remote-as 100
  neighbor 10.14.1.4 next-hop-self
  neighbor 10.14.1.4 advertise additional-paths all
exit
```

```
R2:As200
conf t
int e0/0
```

```
ip add 10.12.1.2 255.255.255.0
no sh
int e0/1
ip add 10.25.1.2 255.255.255.0
no sh
int lo0
ip add 20.1.1.1 255.255.255.0
exit
```

```
Router bgp 200
bgp router-id 2.2.2.2
neig 10.12.1.1 remote-as 100
neig 10.25.1.5 remote-as 200
neig 10.25.1.5 next-hop-self
net 20.1.1.0 m 255.255.255.0
aggregate-address 20.1.0.0 255.255.0.0 summary-only
exit
```

```
R5
conf t
int e0/0
ip add 10.25.1.5 255.255.255.0
no sh
int lo0
ip add 20.1.0.1 255.255.255.0
exit
```

```
Router bgp 200
bgp router-id 5.5.5.5
neig 10.25.1.2 remote-as 200
net 20.1.0.0 m 255.255.255.0
exit
```

```
R3:As300
conf t
int e0/0
ip add 10.13.1.3 255.255.255.0
no sh
int e0/1
ip add 10.36.1.3 255.255.255.0
no sh
int lo0
ip add 20.1.2.2 255.255.255.0
exit
```

```
Router bgp 300
bgp router-id 3.3.3.3
neig 10.13.1.1 remote-as 100
neig 10.36.1.6 remote-as 300
neig 10.36.1.6 next-hop-self
net 20.1.0.0 m 255.255.255.0
aggregate-address 20.1.0.0 255.255.0.0 summary-only
exit
```

```
R6
conf t
int e0/0
ip add 10.36.1.6 255.255.255.0
no sh
int lo0
ip add 20.1.3.3 255.255.255.0
exi
```

```
Router bgp 300
bgp router-id 6.6.6.6
neig 10.36.1.3 remote-as 300
net 20.1.3.0 m 255.255.255.0
exit
```

R1: BGP inject-Map

1. Define Summary from As 200
2. Define specific routes to be injected
3. source of summary

```
Route-map
match summ
match source ip
```

```
Route-map IM-As200
set
set
```

```
Router bgp
bgp inject
```

!1. Define Summary from As 200

```
ip prefix-list AGGR-prefix-AS200 seq 5 permit 20.1.0.0/16
```

! Prefixes to be injected

```
ip prefix-list IM-AS200 seq 5 permit 20.1.0.0/24
ip prefix-list IM-AS200 seq 10 permit 20.1.1.0/24
```

! source of summary

```
ip prefix-list Route-SRC-AS200 seq 5 permit 10.12.1.2/32
```

! configure route map to match summary/source

```
route-map AS200-Exist-map permit 10
match ip address prefix-list AGGR-prefix-AS200
match ip route-source prefix-list Route-SRC-AS200
```

!Routes to be inject

```
route-map AS200-IM permit 10
set ip address prefix-list IM-AS200
set origin igp
```

```
set community no-advertise
```

```
!
```

```
Router bgp 100  
bgp inject-map AS200-IM exist-map AS200-Exist-map  
exit
```

```
AS 300:
```

```
-----
```

```
1.Define Summary from As 200
```

```
ip prefix-list AGGR-prefix-AS300 seq 5 permit 20.1.0.0/16
```

```
! Prefixes to be injected
```

```
ip prefix-list IM-AS300 seq 5 permit 20.1.2.0/24
```

```
ip prefix-list IM-AS300 seq 10 permit 20.1.3.0/24
```

```
! source of summary
```

```
ip prefix-list Route-SRC-AS300 seq 5 permit 10.13.1.3/32
```

```
! configure route map to match summary/source
```

```
route-map AS300-Exist-map permit 10
```

```
match ip address prefix-list AGGR-prefix-AS300
```

```
match ip route-source prefix-list Route-SRC-AS300
```

```
!Routes to be inject
```

```
route-map AS300-IM permit 10
```

```
set ip address prefix-list IM-AS300
```

```
set origin igp
```

```
set community no-advertise
```

```
!
```

```
Router bgp 100  
bgp inject-map AS300-IM exist-map AS300-Exist-map  
exit
```

```
=====
```

```
BGP outbound route Filtering:
```

```
-----
```

```
R4 As 100
```

```
ip prefix-list ORF-2 seq 5 deny 2.0.0.0/8
```

```
ip prefix-list ORF-2 seq 10 permit 0.0.0.0/0 le 32
```

```
router bgp 100  
bgp router-id 4.4.4.4  
bgp log-neighbor-changes  
neighbor 10.14.1.1 remote-as 100
```

```
!
```

```
address-family ipv4
  bgp additional-paths receive
  network 10.4.4.0 mask 255.255.255.0
  neighbor 10.14.1.1 activate
  neighbor 10.14.1.1 capability orf prefix-list send
  neighbor 10.14.1.1 prefix-list ORF-2 in
exit-address-family
```

```
do clear ip bgp * so in prefix-filter
```

```
R1
router bgp 100
neighbor 10.14.1.4 capability orf prefix-list receive
exit
```

```
R1(config-router)#do sh ip bgp neig 10.14.1.4 received prefix-filter
Address family: IPv4 Unicast
ip prefix-list 10.14.1.4: 2 entries
  seq 5 deny 2.0.0.0/8
  seq 10 permit 0.0.0.0/0 le 32
```

```
R1(config)#do sh ip bgp neig 10.14.1.4 advertised-routes
```

Network	Next Hop	Metric	LocPrf	Weight	Path
*> 10.1.1.0/24	0.0.0.0	0		32768	i
*> 20.1.0.0/16	10.12.1.2	0		0 200	i
* a20.1.0.0/16	10.13.1.3	0		0 300	i

```
BGP DMZ BW:
-----
```

```
R1
Router bgp 100
  bgp dmzlink-bw
  neighbor 10.12.1.2 remote-as 200
  neighbor 10.12.1.2 send-community both
  neighbor 10.12.1.2 dmzlink-bw
  neighbor 10.13.1.3 remote-as 200
  neighbor 10.13.1.3 send-community both
  neighbor 10.13.1.3 dmzlink-bw
  maximum-paths 2
exit
```

```
int e0/0
bandwidth 20000
exit
```

```
int e0/1
bandwidth 10000
exit
```

Network	Next Hop	Metric	LocPrf	Weight	Path
*m a2.0.0.0	10.13.1.3	0	0	200	i
*>	10.12.1.2	0	0	200	i

```
R1(config)#do sh ip route 2.0.0.0
Routing entry for 2.0.0.0/8
  Known via "bgp 100", distance 20, metric 0
  Tag 200, type external
  Last update from 10.12.1.2 00:04:03 ago
  Routing Descriptor Blocks:
  * 10.13.1.3, from 10.13.1.3, 00:04:03 ago
    Route metric is 0, traffic share count is 1
    AS Hops 1
    Route tag 200
    MPLS label: none
  10.12.1.2, from 10.12.1.2, 00:04:03 ago
    Route metric is 0, traffic share count is 2
    AS Hops 1
    Route tag 200
    MPLS label: none
```

```
=====
BGP redistribution
```

```
R3:
conf t
int e0/0
Desc conn to R2
ip add 10.23.1.3 255.255.255.0
no sh
int e0/1
Desc Rip NW
ip add 7.7.7.7 255.0.0.0
no sh
int e0/2
Desc Eigrp
ip add 9.9.9.9 255.0.0.0
no sh
Int e0/3
Desc ospf inter area
ip add 8.8.8.8 255.0.0.0
no sh
int e1/0
Desc intra area
ip add 6.6.6.6 255.0.0.0
no sh
exit
```

```
router eigrp 1
network 9.9.9.9 0.0.0.0
exi
```

```
router rip
version 2
network 7.0.0.0
no auto-summary
```

```
router ospf 1
redistribute rip subnets
redistribute eigrp 1 metric-type 1 subnets
net 10.23.1.3 0.0.0.0 a 0
network 6.6.6.6 0.0.0.0 area 0
network 8.8.8.8 0.0.0.0 area 1
exit
```

```
R2:
conf t
int e0/1
Desc conn to R3
ip add 10.23.1.2 255.255.255.0
no sh
int e0/0
Desc conn to R1 bgp
ip add 10.12.1.2 255.255.255.0
no sh
exit
```

```
router ospf 1
network 10.23.1.2 0.0.0.0 area 0
exit
```

```
router bgp 100
bgp redistribute-internal
redistribute ospf 1 match internal external 1 external 2
neighbor 10.12.1.1 remote-as 100
exit
```

```
R1:
conf t
int e0/0
ip add 10.12.1.1 255.255.255.0
no sh
int lo0
ip add 1.1.1.1 255.0.0.0
exit
```

```
router bgp 100
bgp log-neighbor-changes
network 1.0.0.0
neighbor 10.12.1.2 remote-as 100
exit
```

