

# Lab 4: MBGP and Inter-domain SSM Answers

## - Configure RIB groups on Border-A

```
routing-options {
  interface-routes {
    rib-group inet ifrg;
  }
  rib-groups {
    ifrg {
      import-rib [ inet.0 inet.2 ];
    }
    pim-rg {
      import-rib inet.2;
    }
    igp-rg {
      export-rib inet.0;
      import-rib [ inet.0 inet.2 ];
    }
  }
}
protocols {
  pim {
    rib-group inet pim-rg;
  }
  ospf {
    rib-group igp-rg;
  }
}
```

## - Configure PIM-SM on external Pod interfaces Border-A fe-0/0/0 and Border-B eth0/0

### Border-A

```
protocols {
  pim {
    interface fe-0/0/0 {
      mode sparse ;
      version 2 ;
    }
  }
}
```

### Border-B

```
interface Ethernet0/0
  ip pim sparse-mode
  ip pim version 2
```

## - Configure external PIM-SM interfaces to ignore Auto-RP and BSR data.

### Border-A

```
routing-options {
```

```

multicast {
    scope autorp-announce {
        prefix 224.0.1.39/32;
        interface all;
    }
    scope autorp-discovery {
        prefix 224.0.1.40/32;
        interface all;
    }
}
}
protocols {
    pim {
        rp {
            bootstrap-import reject-all;
            bootstrap-export reject-all;
        }
    }
}
policy-options {
    policy-statement reject-all {
        then reject;
    }
}
}

```

#### Border-B

```

interface Ethernet0/0
    ip pim bsr-border
    ip multicast boundary multicast-boundary
ip access-list standard multicast-boundary
    deny 224.0.1.39
    deny 224.0.1.40
    permit any

```

### - Configure MBGP NLRI multicast on all existing internal BGP peers.

#### Border-A

```

protocols {
    bgp {
        group iBGP-mesh {
            family inet {
                unicast;
                multicast;
            }
            type internal;
            local-address 199.109.202.1;
            export set-nextthop-self;
            local-as 65502;
        }
        neighbor 199.109.202.2;
        neighbor 199.109.202.3;
    }
}

```

#### Border-B

```

router bgp 65502
    neighbor internal peer-group
    neighbor internal remote-as 65502
    neighbor internal update-source Loopback0

```

```
neighbor internal version 4
neighbor internal next-hop-self
neighbor internal soft-reconfiguration inbound
neighbor 199.109.202.1 peer-group internal
neighbor 199.109.202.3 peer-group internal
address-family ipv4 multicast
    neighbor 199.109.202.1 activate
    neighbor 199.109.202.3 activate
exit-address-family
```

#### Core-C

```
router bgp 65502
neighbor internal peer-group
neighbor internal remote-as 65502
neighbor internal update-source Loopback0
neighbor internal version 4
neighbor internal next-hop-self
neighbor internal soft-reconfiguration inbound
neighbor 199.109.202.1 peer-group internal
neighbor 199.109.202.2 peer-group internal
address-family ipv4 multicast
    neighbor 199.109.202.1 activate
    neighbor 199.109.202.2 activate
exit-address-family
```

### - Configure MBGP NLRI multicast on external peers 199.109.y.18 and 199.109.x.17.

```
protocols {
    bgp {
        group external-peers {
            family inet {
                unicast;
                multicast;
            }
            type external;
            import transit-others;
            export [ announce-our-block transit-others ];
            local-as 65502;
            neighbor 199.109.203.18 {
                description "Pod 3 Border B";
                local-address 199.109.203.17;
                peer-as 65503;
            }
        }
    }
}
```

#### Border-B

```
router bgp 65502
neighbor external peer-group
neighbor external 199.109.202.17 route-map external-announce out
neighbor external version 4
neighbor external soft-reconfiguration inbound
neighbor 199.109.202.17 remote-as 65501
neighbor 199.109.202.17 peer-group external
address-family ipv4 multicast
    neighbor external activate
    neighbor 199.109.202.17 peer-group external
exit-address-family
```

- **Start SSM stream on Host-Q.**
- **Publish source info (Source, Group, Port) on whiteboard.**
- **On Border-A and Border-B, compare unicast and multicast reachability info for each external source. Are external unicast and multicast topologies congruent?**
- **Start SSM receivers for each external source.**
- **Verify (S,G) joins follow multicast reachability info to pod border.**
- **Troubleshoot as necessary.**
- **Capture and decode packets to verify that data for each SSM channel is received.**
- **Stop SSM sources and receivers.**