**IERG4831**

**Lab 4: Implementation of inter-domain routing networks**

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**Task 0: Core IGP in each ISP network**

* Record a screen dump of the network topology.

Diagram

Description automatically generated with medium confidence

**Task 1: Core IGP in each ISP network**

* Record the route table of P in each ISP.

ISP\_A-P:

|  |
| --- |
| ISP\_A-P(config-if)#do sh ip ro  Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP  D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area  N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2  E1 - OSPF external type 1, E2 - OSPF external type 2  i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2  ia - IS-IS inter area, \* - candidate default, U - per-user static route  o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP  a - application route  + - replicated route, % - next hop override, p - overrides from PfR  Gateway of last resort is not set  1.0.0.0/8 is variably subnetted, 6 subnets, 2 masks  C 1.1.11.0/24 is directly connected, GigabitEthernet0/1  L 1.1.11.254/32 is directly connected, GigabitEthernet0/1  C 1.1.12.0/24 is directly connected, GigabitEthernet0/2  L 1.1.12.254/32 is directly connected, GigabitEthernet0/2  C 1.1.13.0/24 is directly connected, GigabitEthernet0/3  L 1.1.13.254/32 is directly connected, GigabitEthernet0/3  10.0.0.0/8 is variably subnetted, 6 subnets, 2 masks  O 10.1.1.1/32 [110/2] via 1.1.11.1, 00:01:39, GigabitEthernet0/1  O 10.1.1.2/32 [110/2] via 1.1.12.1, 00:01:25, GigabitEthernet0/2  O 10.1.1.3/32 [110/2] via 1.1.13.1, 00:01:15, GigabitEthernet0/3  C 10.1.1.254/32 is directly connected, Loopback0  C 10.10.10.0/24 is directly connected, GigabitEthernet0/0  L 10.10.10.1/32 is directly connected, GigabitEthernet0/0 |

ISP\_B-P:

|  |
| --- |
| ISP\_B-P(config)#do sh ip ro  Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP  D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area  N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2  E1 - OSPF external type 1, E2 - OSPF external type 2  i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2  ia - IS-IS inter area, \* - candidate default, U - per-user static route  o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP  a - application route  + - replicated route, % - next hop override, p - overrides from PfR  Gateway of last resort is not set  2.0.0.0/8 is variably subnetted, 6 subnets, 2 masks  C 2.2.21.0/24 is directly connected, GigabitEthernet0/1  L 2.2.21.254/32 is directly connected, GigabitEthernet0/1  C 2.2.22.0/24 is directly connected, GigabitEthernet0/2  L 2.2.22.254/32 is directly connected, GigabitEthernet0/2  C 2.2.23.0/24 is directly connected, GigabitEthernet0/3  L 2.2.23.254/32 is directly connected, GigabitEthernet0/3  10.0.0.0/32 is subnetted, 4 subnets  O 10.2.2.1 [110/2] via 2.2.21.1, 00:01:00, GigabitEthernet0/1  O 10.2.2.2 [110/2] via 2.2.22.1, 00:01:21, GigabitEthernet0/2  O 10.2.2.3 [110/2] via 2.2.23.1, 00:00:50, GigabitEthernet0/3  C 10.2.2.254 is directly connected, Loopback0  20.0.0.0/8 is variably subnetted, 2 subnets, 2 masks  C 20.20.20.0/24 is directly connected, GigabitEthernet0/0  L 20.20.20.1/32 is directly connected, GigabitEthernet0/0 |

* Record the configurations in this task.

ISP\_A-P:

|  |
| --- |
| !  interface Loopback0  ip address 10.1.1.254 255.255.255.255  !  interface GigabitEthernet0/0  ip address 10.10.10.1 255.255.255.0  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/1  ip address 1.1.11.254 255.255.255.0  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/2  ip address 1.1.12.254 255.255.255.0  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/3  ip address 1.1.13.254 255.255.255.0  duplex auto  speed auto  media-type rj45  !  router ospf 1  network 1.1.11.0 0.0.0.255 area 0  network 1.1.12.0 0.0.0.255 area 0  network 1.1.13.0 0.0.0.255 area 0  network 10.1.1.254 0.0.0.0 area 0  network 10.10.10.0 0.0.0.255 area 0  ! |

ISP\_A-S1\_PE:

|  |
| --- |
| !  interface Loopback0  ip address 10.1.1.1 255.255.255.255  !  interface GigabitEthernet0/0  ip address 1.1.11.1 255.255.255.0  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/1  ip address 1.1.1.254 255.255.255.0  shutdown  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/2  no ip address  shutdown  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/3  no ip address  shutdown  duplex auto  speed auto  media-type rj45  !  router ospf 1  network 1.1.11.0 0.0.0.255 area 0  network 10.1.1.1 0.0.0.0 area 0  ! |

ISP\_A-S2\_PE:

|  |
| --- |
| !  interface Loopback0  ip address 10.1.1.2 255.255.255.255  !  interface GigabitEthernet0/0  ip address 1.1.12.1 255.255.255.0  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/1  ip address 1.1.2.254 255.255.255.0  shutdown  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/2  no ip address  shutdown  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/3  no ip address  shutdown  duplex auto  speed auto  media-type rj45  !  router ospf 1  network 1.1.12.0 0.0.0.255 area 0  network 10.1.1.2 0.0.0.0 area 0  ! |

ISP\_A-S3\_PE:

|  |
| --- |
| !  interface Loopback0  ip address 10.1.1.3 255.255.255.255  !  interface GigabitEthernet0/0  ip address 1.1.13.1 255.255.255.0  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/1  ip address 1.1.3.254 255.255.255.0  shutdown  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/2  no ip address  shutdown  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/3  no ip address  shutdown  duplex auto  speed auto  media-type rj45  !  router ospf 1  network 1.1.13.0 0.0.0.255 area 0  network 10.1.1.3 0.0.0.0 area 0  ! |

ISP\_B-P:

|  |
| --- |
| !  interface Loopback0  ip address 10.2.2.254 255.255.255.255  !  interface GigabitEthernet0/0  ip address 20.20.20.1 255.255.255.0  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/1  ip address 2.2.21.254 255.255.255.0  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/2  ip address 2.2.22.254 255.255.255.0  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/3  ip address 2.2.23.254 255.255.255.0  duplex auto  speed auto  media-type rj45  !  router ospf 1  network 2.2.21.0 0.0.0.255 area 0  network 2.2.22.0 0.0.0.255 area 0  network 2.2.23.0 0.0.0.255 area 0  network 10.2.2.254 0.0.0.0 area 0  network 20.20.20.0 0.0.0.255 area 0  ! |

ISP\_B-S1\_PE:

|  |
| --- |
| !  interface Loopback0  ip address 10.2.2.1 255.255.255.255  !  interface GigabitEthernet0/0  ip address 2.2.21.1 255.255.255.0  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/1  ip address 2.2.1.254 255.255.255.0  shutdown  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/2  no ip address  shutdown  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/3  no ip address  shutdown  duplex auto  speed auto  media-type rj45  !  router ospf 1  network 2.2.21.0 0.0.0.255 area 0  network 10.2.2.1 0.0.0.0 area 0  ! |

ISP\_B-S2\_PE:

|  |
| --- |
| !  interface Loopback0  ip address 10.2.2.2 255.255.255.255  !  interface GigabitEthernet0/0  ip address 2.2.22.1 255.255.255.0  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/1  ip address 2.2.2.254 255.255.255.0  shutdown  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/2  no ip address  shutdown  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/3  no ip address  shutdown  duplex auto  speed auto  media-type rj45  !  router ospf 1  network 2.2.22.0 0.0.0.255 area 0  network 10.2.2.2 0.0.0.0 area 0  ! |

ISP\_B-S3\_PE:

|  |
| --- |
| !  interface Loopback0  ip address 10.2.2.3 255.255.255.255  !  interface GigabitEthernet0/0  ip address 2.2.23.1 255.255.255.0  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/1  ip address 2.2.3.254 255.255.255.0  shutdown  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/2  no ip address  shutdown  duplex auto  speed auto  media-type rj45  !  interface GigabitEthernet0/3  no ip address  shutdown  duplex auto  speed auto  media-type rj45  !  router ospf 1  network 2.2.23.0 0.0.0.255 area 0  network 10.2.2.3 0.0.0.0 area 0  ! |

**Task 2: Core BGP in each ISP network**

* Record the configurations in this task.

ISP\_A-P:

|  |
| --- |
| ISP\_A-P(config)# do sh run | s bgp  router bgp 1000  bgp log-neighbor-changes  neighbor 10.1.1.1 remote-as 1000  neighbor 10.1.1.1 update-source Loopback0  neighbor 10.1.1.1 route-reflector-client  neighbor 10.1.1.1 next-hop-self  neighbor 10.1.1.2 remote-as 1000  neighbor 10.1.1.2 update-source Loopback0  neighbor 10.1.1.2 route-reflector-client  neighbor 10.1.1.2 next-hop-self  neighbor 10.1.1.3 remote-as 1000  neighbor 10.1.1.3 update-source Loopback0  neighbor 10.1.1.3 route-reflector-client  neighbor 10.1.1.3 next-hop-self |

ISP\_A-S1\_PE:

|  |
| --- |
| ISP\_A-S1\_PE(config)#do sh run | s bgp  router bgp 1000  bgp log-neighbor-changes  redistribute connected  neighbor 10.1.1.254 remote-as 1000  neighbor 10.1.1.254 update-source Loopback0  neighbor 10.1.1.254 update-source Loopback0  neighbor 10.1.1.254 next-hop-self |

ISP\_A-S2\_PE:

|  |
| --- |
| ISP\_A-S2\_PE(config)#do sh run | s bgp  router bgp 1000  bgp log-neighbor-changes  redistribute connected  neighbor 10.1.1.254 remote-as 1000  neighbor 10.1.1.254 update-source Loopback0  neighbor 10.1.1.254 next-hop-self |

ISP\_A-S3\_PE:

|  |
| --- |
| ISP\_A-S3\_PE(config)#do sh run | s bgp  router bgp 1000  bgp log-neighbor-changes  redistribute connected  neighbor 10.1.1.254 remote-as 1000  neighbor 10.1.1.254 update-source Loopback0  neighbor 10.1.1.254 next-hop-self |

ISP\_B-P:

|  |
| --- |
| ISP\_B-P(config)#do sh run | s bgp  router bgp 2000  bgp log-neighbor-changes  neighbor 10.2.2.1 remote-as 2000  neighbor 10.2.2.1 update-source Loopback0  neighbor 10.2.2.1 route-reflector-client  neighbor 10.2.2.1 next-hop-self  neighbor 10.2.2.2 remote-as 2000  neighbor 10.2.2.2 update-source Loopback0  neighbor 10.2.2.2 route-reflector-client  neighbor 10.2.2.2 next-hop-self  neighbor 10.2.2.3 remote-as 2000  neighbor 10.2.2.3 update-source Loopback0  neighbor 10.2.2.3 route-reflector-client  neighbor 10.2.2.3 next-hop-self |

ISP\_B-S1\_PE:

|  |
| --- |
| ISP\_B-S1\_PE(config)#do sh run | s bgp  router bgp 2000  bgp log-neighbor-changes  redistribute connected  neighbor 10.2.2.254 remote-as 2000  neighbor 10.2.2.254 update-source Loopback0  neighbor 10.2.2.254 next-hop-self |

ISP\_B-S2\_PE:

|  |
| --- |
| ISP\_B-S2\_PE(config)#do sh run | s bgp  router bgp 2000  bgp log-neighbor-changes  redistribute connected  neighbor 10.2.2.254 remote-as 2000  neighbor 10.2.2.254 update-source Loopback0  neighbor 10.2.2.254 next-hop-self |

ISP\_B-S3\_PE:

|  |
| --- |
| ISP\_B-S3\_PE(config)#do sh run | s bgp  router bgp 2000  bgp log-neighbor-changes  redistribute connected  neighbor 10.2.2.254 remote-as 2000  neighbor 10.2.2.254 update-source Loopback0  neighbor 10.2.2.254 next-hop-self |

* Record the summary of BGP neighbor status by “show ip bgp summary” on the P routers.

ISP\_A-P:

|  |
| --- |
| ISP\_A-P(config)#do show ip bgp summary  BGP router identifier 10.1.1.254, local AS number 1000  BGP table version is 5, main routing table version 5  Neighbor V AS MsgRcvd MsgSent TblVer InQ OutQ Up/Down State/PfxRcd  10.1.1.1 4 1000 54 52 5 0 0 00:43:57 0  10.1.1.2 4 1000 50 52 5 0 0 00:43:36 0  10.1.1.3 4 1000 51 50 5 0 0 00:43:16 0 |

ISP\_B-P:

|  |
| --- |
| ISP\_B-P(config-router)#do sh ip bgp summary  BGP router identifier 10.2.2.254, local AS number 2000  BGP table version is 1, main routing table version 1  Neighbor V AS MsgRcvd MsgSent TblVer InQ OutQ Up/Down State/PfxRcd  10.2.2.1 4 2000 4 3 1 0 0 00:00:59 0  10.2.2.2 4 2000 2 2 1 0 0 00:00:47 0  10.2.2.3 4 2000 2 2 1 0 0 00:00:25 0 |

**Task 3: Configuration of eBGP between PE and CE in each site**

* Record the BGP table of P router by the command “show ip bgp”.

ISP\_A-P:

|  |
| --- |
| ISP\_A-P(config)#do sh ip bgp  BGP table version is 101, local router ID is 10.1.1.254  Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,  r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,  x best-external, a additional-path, c RIB-compressed,  t secondary path,  Origin codes: i - IGP, e - EGP, ? - incomplete  RPKI validation codes: V valid, I invalid, N Not found  Network Next Hop Metric LocPrf Weight Path  \*>i 1.1.1.0/24 10.1.1.1 0 100 0 ?  \*>i 1.1.2.0/24 10.1.1.2 0 100 0 ?  \*>i 1.1.3.0/24 10.1.1.3 0 100 0 ?  r>i 1.1.11.0/24 10.1.1.1 0 100 0 ?  r>i 1.1.12.0/24 10.1.1.2 0 100 0 ?  r>i 1.1.13.0/24 10.1.1.3 0 100 0 ?  \*>i 10.0.11.0/24 10.1.1.1 0 100 0 1100 i  r>i 10.1.1.1/32 10.1.1.1 0 100 0 ?  r>i 10.1.1.2/32 10.1.1.2 0 100 0 ?  r>i 10.1.1.3/32 10.1.1.3 0 100 0 ?  \*>i 172.16.12.0/24 10.1.1.2 0 100 0 1200 i  \*>i 192.168.13.0 10.1.1.3 0 100 0 1300 i  \*>i 200.11.1.0 10.1.1.1 0 100 0 1100 i  Network Next Hop Metric LocPrf Weight Path  \*>i 200.11.2.0 10.1.1.1 0 100 0 1100 i  \*>i 200.11.3.0 10.1.1.1 0 100 0 1100 i  \*>i 200.11.4.0 10.1.1.1 0 100 0 1100 i  \*>i 200.11.5.0 10.1.1.1 0 100 0 1100 i  \*>i 200.11.6.0 10.1.1.1 0 100 0 1100 i  \*>i 200.11.7.0 10.1.1.1 0 100 0 1100 i  \*>i 200.11.8.0 10.1.1.1 0 100 0 1100 i  \*>i 200.11.9.0 10.1.1.1 0 100 0 1100 i  \*>i 200.11.10.0 10.1.1.1 0 100 0 1100 i  \*>i 200.11.11.0 10.1.1.1 0 100 0 1100 i  \*>i 200.11.12.0 10.1.1.1 0 100 0 1100 i  \*>i 200.11.13.0 10.1.1.1 0 100 0 1100 i  \*>i 200.11.14.0 10.1.1.1 0 100 0 1100 i  \*>i 200.11.15.0 10.1.1.1 0 100 0 1100 i  \*>i 200.12.1.0 10.1.1.2 0 100 0 1200 i  \*>i 200.12.2.0 10.1.1.2 0 100 0 1200 i  \*>i 200.12.3.0 10.1.1.2 0 100 0 1200 i  \*>i 200.12.4.0 10.1.1.2 0 100 0 1200 i  \*>i 200.12.5.0 10.1.1.2 0 100 0 1200 i  \*>i 200.12.6.0 10.1.1.2 0 100 0 1200 i  \*>i 200.12.7.0 10.1.1.2 0 100 0 1200 i  \*>i 200.12.8.0 10.1.1.2 0 100 0 1200 i  Network Next Hop Metric LocPrf Weight Path  \*>i 200.12.9.0 10.1.1.2 0 100 0 1200 i  \*>i 200.12.10.0 10.1.1.2 0 100 0 1200 i  \*>i 200.12.11.0 10.1.1.2 0 100 0 1200 i  \*>i 200.12.12.0 10.1.1.2 0 100 0 1200 i  \*>i 200.12.13.0 10.1.1.2 0 100 0 1200 i  \*>i 200.12.14.0 10.1.1.2 0 100 0 1200 i  \*>i 200.12.15.0 10.1.1.2 0 100 0 1200 i  \*>i 200.13.1.0 10.1.1.3 0 100 0 1300 i  \*>i 200.13.2.0 10.1.1.3 0 100 0 1300 i  \*>i 200.13.3.0 10.1.1.3 0 100 0 1300 i  \*>i 200.13.4.0 10.1.1.3 0 100 0 1300 i  \*>i 200.13.5.0 10.1.1.3 0 100 0 1300 i  \*>i 200.13.6.0 10.1.1.3 0 100 0 1300 i  \*>i 200.13.7.0 10.1.1.3 0 100 0 1300 i  \*>i 200.13.8.0 10.1.1.3 0 100 0 1300 i  \*>i 200.13.9.0 10.1.1.3 0 100 0 1300 i  \*>i 200.13.10.0 10.1.1.3 0 100 0 1300 i  \*>i 200.13.11.0 10.1.1.3 0 100 0 1300 i  \*>i 200.13.12.0 10.1.1.3 0 100 0 1300 i  \*>i 200.13.13.0 10.1.1.3 0 100 0 1300 i  \*>i 200.13.14.0 10.1.1.3 0 100 0 1300 i  \*>i 200.13.15.0 10.1.1.3 0 100 0 1300 i |

ISP\_B-P:

|  |
| --- |
| ISP\_B-P(config)#do sh ip bgp  BGP table version is 86, local router ID is 10.2.2.254  Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,  r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,  x best-external, a additional-path, c RIB-compressed,  t secondary path,  Origin codes: i - IGP, e - EGP, ? - incomplete  RPKI validation codes: V valid, I invalid, N Not found  Network Next Hop Metric LocPrf Weight Path  \*>i 2.2.1.0/24 10.2.2.1 0 100 0 ?  \*>i 2.2.2.0/24 10.2.2.2 0 100 0 ?  \*>i 2.2.3.0/24 10.2.2.3 0 100 0 ?  r>i 2.2.21.0/24 10.2.2.1 0 100 0 ?  r>i 2.2.22.0/24 10.2.2.2 0 100 0 ?  r>i 2.2.23.0/24 10.2.2.3 0 100 0 ?  \*>i 10.0.21.0/24 10.2.2.1 0 100 0 2100 i  r>i 10.2.2.1/32 10.2.2.1 0 100 0 ?  r>i 10.2.2.2/32 10.2.2.2 0 100 0 ?  r>i 10.2.2.3/32 10.2.2.3 0 100 0 ?  \*>i 172.16.22.0/24 10.2.2.2 0 100 0 2200 i  \*>i 192.168.23.0 10.2.2.3 0 100 0 2300 i  \*>i 200.21.1.0 10.2.2.1 0 100 0 2100 i  Network Next Hop Metric LocPrf Weight Path  \*>i 200.21.2.0 10.2.2.1 0 100 0 2100 i  \*>i 200.21.3.0 10.2.2.1 0 100 0 2100 i  \*>i 200.21.4.0 10.2.2.1 0 100 0 2100 i  \*>i 200.21.5.0 10.2.2.1 0 100 0 2100 i  \*>i 200.21.6.0 10.2.2.1 0 100 0 2100 i  \*>i 200.21.7.0 10.2.2.1 0 100 0 2100 i  \*>i 200.21.8.0 10.2.2.1 0 100 0 2100 i  \*>i 200.21.9.0 10.2.2.1 0 100 0 2100 i  \*>i 200.21.10.0 10.2.2.1 0 100 0 2100 i  \*>i 200.21.11.0 10.2.2.1 0 100 0 2100 i  \*>i 200.21.12.0 10.2.2.1 0 100 0 2100 i  \*>i 200.21.13.0 10.2.2.1 0 100 0 2100 i  \*>i 200.21.14.0 10.2.2.1 0 100 0 2100 i  \*>i 200.21.15.0 10.2.2.1 0 100 0 2100 i  \*>i 200.22.1.0 10.2.2.2 0 100 0 2200 i  \*>i 200.22.2.0 10.2.2.2 0 100 0 2200 i  \*>i 200.22.3.0 10.2.2.2 0 100 0 2200 i  \*>i 200.22.4.0 10.2.2.2 0 100 0 2200 i  \*>i 200.22.5.0 10.2.2.2 0 100 0 2200 i  \*>i 200.22.6.0 10.2.2.2 0 100 0 2200 i  \*>i 200.22.7.0 10.2.2.2 0 100 0 2200 i  \*>i 200.22.8.0 10.2.2.2 0 100 0 2200 i  Network Next Hop Metric LocPrf Weight Path  \*>i 200.22.9.0 10.2.2.2 0 100 0 2200 i  \*>i 200.22.10.0 10.2.2.2 0 100 0 2200 i  \*>i 200.22.11.0 10.2.2.2 0 100 0 2200 i  \*>i 200.22.12.0 10.2.2.2 0 100 0 2200 i  \*>i 200.22.13.0 10.2.2.2 0 100 0 2200 i  \*>i 200.22.14.0 10.2.2.2 0 100 0 2200 i  \*>i 200.22.15.0 10.2.2.2 0 100 0 2200 i  \*>i 200.23.1.0 10.2.2.3 0 100 0 2300 i  \*>i 200.23.2.0 10.2.2.3 0 100 0 2300 i  \*>i 200.23.3.0 10.2.2.3 0 100 0 2300 i  \*>i 200.23.4.0 10.2.2.3 0 100 0 2300 i  \*>i 200.23.5.0 10.2.2.3 0 100 0 2300 i  \*>i 200.23.6.0 10.2.2.3 0 100 0 2300 i  \*>i 200.23.7.0 10.2.2.3 0 100 0 2300 i  \*>i 200.23.8.0 10.2.2.3 0 100 0 2300 i  \*>i 200.23.9.0 10.2.2.3 0 100 0 2300 i  \*>i 200.23.10.0 10.2.2.3 0 100 0 2300 i  \*>i 200.23.11.0 10.2.2.3 0 100 0 2300 i  \*>i 200.23.12.0 10.2.2.3 0 100 0 2300 i  \*>i 200.23.13.0 10.2.2.3 0 100 0 2300 i  \*>i 200.23.14.0 10.2.2.3 0 100 0 2300 i  \*>i 200.23.15.0 10.2.2.3 0 100 0 2300 i |

* Record the configurations in this task.

ISP\_A-S1\_PE:

|  |
| --- |
| ISP\_A-S1\_PE(config)#do sh run | s bgp  router bgp 1000  bgp log-neighbor-changes  redistribute connected  neighbor 1.1.1.1 remote-as 1100  neighbor 10.1.1.254 remote-as 1000  neighbor 10.1.1.254 update-source Loopback0  neighbor 10.1.1.254 next-hop-self |

ISP\_A-S2\_PE:

|  |
| --- |
| ISP\_A-S2\_PE(config)#do sh run | s bgp  router bgp 1000  bgp log-neighbor-changes  redistribute connected  neighbor 10.1.1.254 remote-as 1000  neighbor 10.1.1.254 update-source Loopback0  neighbor 10.1.1.254 next-hop-self |

ISP\_A-S3\_PE:

|  |
| --- |
| ISP\_A-S3\_PE(config)#do sh run | s bgp  router bgp 1000  bgp log-neighbor-changes  redistribute connected  neighbor 1.1.3.1 remote-as 1300  neighbor 10.1.1.254 remote-as 1000  neighbor 10.1.1.254 update-source Loopback0  neighbor 10.1.1.254 next-hop-self |

ISP\_A-S1\_CE:

|  |
| --- |
| ISP\_A-S1\_CE(config)#do sh run | s bgp  router bgp 1100  bgp log-neighbor-changes  network 10.0.11.0 mask 255.255.255.0  network 200.11.1.0  network 200.11.2.0  network 200.11.3.0  network 200.11.4.0  network 200.11.5.0  network 200.11.6.0  network 200.11.7.0  network 200.11.8.0  network 200.11.9.0  network 200.11.10.0  network 200.11.11.0  network 200.11.12.0  network 200.11.13.0  network 200.11.14.0  network 200.11.15.0  neighbor 1.1.1.254 remote-as 1000 |

ISP\_A-S2\_CE:

|  |
| --- |
| ISP\_A-S2\_CE(config)#do sh run | s bgp  router bgp 1200  bgp log-neighbor-changes  network 172.16.12.0 mask 255.255.255.0  network 200.12.1.0  network 200.12.2.0  network 200.12.3.0  network 200.12.4.0  network 200.12.5.0  network 200.12.6.0  network 200.12.7.0  network 200.12.8.0  network 200.12.9.0  network 200.12.10.0  network 200.12.11.0  network 200.12.12.0  network 200.12.13.0  network 200.12.14.0  network 200.12.15.0  neighbor 1.1.2.254 remote-as 1000 |

ISP\_A-S3\_CE:

|  |
| --- |
| ISP\_A-S3\_CE(config)#do sh run | s bgp  router bgp 1300  bgp log-neighbor-changes  network 192.168.13.0  network 200.13.1.0  network 200.13.2.0  network 200.13.3.0  network 200.13.4.0  network 200.13.5.0  network 200.13.6.0  network 200.13.7.0  network 200.13.8.0  network 200.13.9.0  network 200.13.10.0  network 200.13.11.0  network 200.13.12.0  network 200.13.13.0  network 200.13.14.0  network 200.13.15.0  neighbor 1.1.3.254 remote-as 1000 |

ISP\_B-S1\_PE:

|  |
| --- |
| ISP\_B-S1\_PE(config)#do sh run | s bgp  router bgp 2000  bgp log-neighbor-changes  redistribute connected  neighbor 2.2.1.1 remote-as 2100  neighbor 10.2.2.254 remote-as 2000  neighbor 10.2.2.254 update-source Loopback0  neighbor 10.2.2.254 next-hop-self |

ISP\_B-S2\_PE:

|  |
| --- |
| ISP\_B-S2\_PE(config)#do sh run | s bgp  router bgp 2000  bgp log-neighbor-changes  redistribute connected  neighbor 2.2.2.1 remote-as 2200  neighbor 10.2.2.254 remote-as 2000  neighbor 10.2.2.254 update-source Loopback0  neighbor 10.2.2.254 next-hop-self |

ISP\_B-S3\_PE:

|  |
| --- |
| ISP\_B-S3\_PE(config)#do sh run | s bgp  router bgp 2000  bgp log-neighbor-changes  redistribute connected  neighbor 2.2.3.1 remote-as 2300  neighbor 10.2.2.254 remote-as 2000  neighbor 10.2.2.254 update-source Loopback0  neighbor 10.2.2.254 next-hop-self |

ISP\_B-S1\_CE:

|  |
| --- |
| ISP\_B-S1\_CE(config)#do sh run | s bgp  router bgp 2100  bgp log-neighbor-changes  network 10.0.21.0 mask 255.255.255.0  network 200.21.1.0  network 200.21.2.0  network 200.21.3.0  network 200.21.4.0  network 200.21.5.0  network 200.21.6.0  network 200.21.7.0  network 200.21.8.0  network 200.21.9.0  network 200.21.10.0  network 200.21.11.0  network 200.21.12.0  network 200.21.13.0  network 200.21.14.0  network 200.21.15.0  neighbor 2.2.1.254 remote-as 2000 |

ISP\_B-S2\_CE:

|  |
| --- |
| ISP\_B-S2\_CE(config)#do sh run | s bgp  router bgp 2200  bgp log-neighbor-changes  network 172.16.22.0 mask 255.255.255.0  network 200.22.1.0  network 200.22.2.0  network 200.22.3.0  network 200.22.4.0  network 200.22.5.0  network 200.22.6.0  network 200.22.7.0  network 200.22.8.0  network 200.22.9.0  network 200.22.10.0  network 200.22.11.0  network 200.22.12.0  network 200.22.13.0  network 200.22.14.0  network 200.22.15.0  neighbor 2.2.2.254 remote-as 2000 |

ISP\_B-S3\_CE:

|  |
| --- |
| ISP\_B-S3\_CE(config)#do sh run | s bgp  router bgp 2300  bgp log-neighbor-changes  network 192.168.23.0  network 200.23.1.0  network 200.23.2.0  network 200.23.3.0  network 200.23.4.0  network 200.23.5.0  network 200.23.6.0  network 200.23.7.0  network 200.23.8.0  network 200.23.9.0  network 200.23.10.0  network 200.23.11.0  network 200.23.12.0  network 200.23.13.0  network 200.23.14.0  network 200.23.15.0  neighbor 2.2.3.254 remote-as 2000 |

**Task 4: Configuration of eBGP between ISP and RSP**

* Record the BGP table of ISP\_A-S1\_CE and ISP\_B-S2\_CE by the command “show ip bgp”.

ISP\_A-S1\_CE:

|  |
| --- |
| ISP\_A-S1\_CE(config)#do sh ip bgp  BGP table version is 155, local router ID is 10.0.11.254  Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,  r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,  x best-external, a additional-path, c RIB-compressed,  t secondary path,  Origin codes: i - IGP, e - EGP, ? - incomplete  RPKI validation codes: V valid, I invalid, N Not found  Network Next Hop Metric LocPrf Weight Path  r> 1.1.1.0/24 1.1.1.254 0 0 1000 ?  \*> 1.1.2.0/24 1.1.1.254 0 1000 ?  \*> 1.1.3.0/24 1.1.1.254 0 1000 ?  \*> 1.1.11.0/24 1.1.1.254 0 0 1000 ?  \*> 1.1.12.0/24 1.1.1.254 0 1000 ?  \*> 1.1.13.0/24 1.1.1.254 0 1000 ?  \*> 2.2.1.0/24 1.1.1.254 0 1000 10 20 2000 ?  \*> 2.2.2.0/24 1.1.1.254 0 1000 10 20 2000 ?  \*> 2.2.3.0/24 1.1.1.254 0 1000 10 20 2000 ?  \*> 2.2.21.0/24 1.1.1.254 0 1000 10 20 2000 ?  Network Next Hop Metric LocPrf Weight Path  \*> 2.2.22.0/24 1.1.1.254 0 1000 10 20 2000 ?  \*> 2.2.23.0/24 1.1.1.254 0 1000 10 20 2000 ?  \*> 10.0.11.0/24 0.0.0.0 0 32768 i  \*> 10.0.21.0/24 1.1.1.254 0 1000 10 20 2000 2100 i  \*> 10.1.1.1/32 1.1.1.254 0 0 1000 ?  \*> 10.1.1.2/32 1.1.1.254 0 1000 ?  \*> 10.1.1.3/32 1.1.1.254 0 1000 ?  \*> 10.1.1.254/32 1.1.1.254 0 1000 ?  \*> 10.2.2.1/32 1.1.1.254 0 1000 10 20 2000 ?  \*> 10.2.2.2/32 1.1.1.254 0 1000 10 20 2000 ?  \*> 10.2.2.3/32 1.1.1.254 0 1000 10 20 2000 ?  \*> 10.2.2.254/32 1.1.1.254 0 1000 10 20 2000 ?  \*> 10.10.10.0/24 1.1.1.254 0 1000 ?  \*> 10.123.123.1/32 1.1.1.254 0 1000 10 ?  \*> 10.123.123.2/32 1.1.1.254 0 1000 10 20 ?  Network Next Hop Metric LocPrf Weight Path  \*> 12.12.12.0/24 1.1.1.254 0 1000 10 ?  \*> 20.20.20.0/24 1.1.1.254 0 1000 10 20 ?  \*> 172.16.12.0/24 1.1.1.254 0 1000 1200 i  \*> 172.16.22.0/24 1.1.1.254 0 1000 10 20 2000 2200 i  \*> 192.168.13.0 1.1.1.254 0 1000 1300 i  \*> 192.168.23.0 1.1.1.254 0 1000 10 20 2000 2300 i  \*> 200.11.1.0 0.0.0.0 0 32768 i  \*> 200.11.2.0 0.0.0.0 0 32768 i  \*> 200.11.3.0 0.0.0.0 0 32768 i  \*> 200.11.4.0 0.0.0.0 0 32768 i  \*> 200.11.5.0 0.0.0.0 0 32768 i  \*> 200.11.6.0 0.0.0.0 0 32768 i  \*> 200.11.7.0 0.0.0.0 0 32768 i  \*> 200.11.8.0 0.0.0.0 0 32768 i  \*> 200.11.9.0 0.0.0.0 0 32768 i  \*> 200.11.10.0 0.0.0.0 0 32768 i  \*> 200.11.11.0 0.0.0.0 0 32768 i  \*> 200.11.12.0 0.0.0.0 0 32768 i  \*> 200.11.13.0 0.0.0.0 0 32768 i  \*> 200.11.14.0 0.0.0.0 0 32768 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.11.15.0 0.0.0.0 0 32768 i  \*> 200.12.1.0 1.1.1.254 0 1000 1200 i  \*> 200.12.2.0 1.1.1.254 0 1000 1200 i  \*> 200.12.3.0 1.1.1.254 0 1000 1200 i  \*> 200.12.4.0 1.1.1.254 0 1000 1200 i  \*> 200.12.5.0 1.1.1.254 0 1000 1200 i  \*> 200.12.6.0 1.1.1.254 0 1000 1200 i  \*> 200.12.7.0 1.1.1.254 0 1000 1200 i  \*> 200.12.8.0 1.1.1.254 0 1000 1200 i  \*> 200.12.9.0 1.1.1.254 0 1000 1200 i  \*> 200.12.10.0 1.1.1.254 0 1000 1200 i  \*> 200.12.11.0 1.1.1.254 0 1000 1200 i  \*> 200.12.12.0 1.1.1.254 0 1000 1200 i  \*> 200.12.13.0 1.1.1.254 0 1000 1200 i  \*> 200.12.14.0 1.1.1.254 0 1000 1200 i  \*> 200.12.15.0 1.1.1.254 0 1000 1200 i  \*> 200.13.1.0 1.1.1.254 0 1000 1300 i  \*> 200.13.2.0 1.1.1.254 0 1000 1300 i  \*> 200.13.3.0 1.1.1.254 0 1000 1300 i  \*> 200.13.4.0 1.1.1.254 0 1000 1300 i  \*> 200.13.5.0 1.1.1.254 0 1000 1300 i  \*> 200.13.6.0 1.1.1.254 0 1000 1300 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.13.7.0 1.1.1.254 0 1000 1300 i  \*> 200.13.8.0 1.1.1.254 0 1000 1300 i  \*> 200.13.9.0 1.1.1.254 0 1000 1300 i  \*> 200.13.10.0 1.1.1.254 0 1000 1300 i  \*> 200.13.11.0 1.1.1.254 0 1000 1300 i  \*> 200.13.12.0 1.1.1.254 0 1000 1300 i  \*> 200.13.13.0 1.1.1.254 0 1000 1300 i  \*> 200.13.14.0 1.1.1.254 0 1000 1300 i  \*> 200.13.15.0 1.1.1.254 0 1000 1300 i  \*> 200.21.1.0 1.1.1.254 0 1000 10 20 2000 2100 i  \*> 200.21.2.0 1.1.1.254 0 1000 10 20 2000 2100 i  \*> 200.21.3.0 1.1.1.254 0 1000 10 20 2000 2100 i  \*> 200.21.4.0 1.1.1.254 0 1000 10 20 2000 2100 i  \*> 200.21.5.0 1.1.1.254 0 1000 10 20 2000 2100 i  \*> 200.21.6.0 1.1.1.254 0 1000 10 20 2000 2100 i  \*> 200.21.7.0 1.1.1.254 0 1000 10 20 2000 2100 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.21.8.0 1.1.1.254 0 1000 10 20 2000 2100 i  \*> 200.21.9.0 1.1.1.254 0 1000 10 20 2000 2100 i  \*> 200.21.10.0 1.1.1.254 0 1000 10 20 2000 2100 i  \*> 200.21.11.0 1.1.1.254 0 1000 10 20 2000 2100 i  \*> 200.21.12.0 1.1.1.254 0 1000 10 20 2000 2100 i  \*> 200.21.13.0 1.1.1.254 0 1000 10 20 2000 2100 i  \*> 200.21.14.0 1.1.1.254 0 1000 10 20 2000 2100 i  \*> 200.21.15.0 1.1.1.254 0 1000 10 20 2000 2100 i  \*> 200.22.1.0 1.1.1.254 0 1000 10 20 2000 2200 i  \*> 200.22.2.0 1.1.1.254 0 1000 10 20 2000 2200 i  \*> 200.22.3.0 1.1.1.254 0 1000 10 20 2000 2200 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.22.4.0 1.1.1.254 0 1000 10 20 2000 2200 i  \*> 200.22.5.0 1.1.1.254 0 1000 10 20 2000 2200 i  \*> 200.22.6.0 1.1.1.254 0 1000 10 20 2000 2200 i  \*> 200.22.7.0 1.1.1.254 0 1000 10 20 2000 2200 i  \*> 200.22.8.0 1.1.1.254 0 1000 10 20 2000 2200 i  \*> 200.22.9.0 1.1.1.254 0 1000 10 20 2000 2200 i  \*> 200.22.10.0 1.1.1.254 0 1000 10 20 2000 2200 i  \*> 200.22.11.0 1.1.1.254 0 1000 10 20 2000 2200 i  \*> 200.22.12.0 1.1.1.254 0 1000 10 20 2000 2200 i  \*> 200.22.13.0 1.1.1.254 0 1000 10 20 2000 2200 i  \*> 200.22.14.0 1.1.1.254 0 1000 10 20 2000 2200 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.22.15.0 1.1.1.254 0 1000 10 20 2000 2200 i  \*> 200.23.1.0 1.1.1.254 0 1000 10 20 2000 2300 i  \*> 200.23.2.0 1.1.1.254 0 1000 10 20 2000 2300 i  \*> 200.23.3.0 1.1.1.254 0 1000 10 20 2000 2300 i  \*> 200.23.4.0 1.1.1.254 0 1000 10 20 2000 2300 i  \*> 200.23.5.0 1.1.1.254 0 1000 10 20 2000 2300 i  \*> 200.23.6.0 1.1.1.254 0 1000 10 20 2000 2300 i  \*> 200.23.7.0 1.1.1.254 0 1000 10 20 2000 2300 i  \*> 200.23.8.0 1.1.1.254 0 1000 10 20 2000 2300 i  \*> 200.23.9.0 1.1.1.254 0 1000 10 20 2000 2300 i  \*> 200.23.10.0 1.1.1.254 0 1000 10 20 2000 2300 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.23.11.0 1.1.1.254 0 1000 10 20 2000 2300 i  \*> 200.23.12.0 1.1.1.254 0 1000 10 20 2000 2300 i  \*> 200.23.13.0 1.1.1.254 0 1000 10 20 2000 2300 i  \*> 200.23.14.0 1.1.1.254 0 1000 10 20 2000 2300 i  \*> 200.23.15.0 1.1.1.254 0 1000 10 20 2000 2300 i |

ISP\_B-S2\_CE:

|  |
| --- |
| ISP\_B-S2\_CE(config)#do sh ip bgp  BGP table version is 150, local router ID is 172.16.22.254  Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,  r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,  x best-external, a additional-path, c RIB-compressed,  t secondary path,  Origin codes: i - IGP, e - EGP, ? - incomplete  RPKI validation codes: V valid, I invalid, N Not found  Network Next Hop Metric LocPrf Weight Path  \*> 1.1.1.0/24 2.2.2.254 0 2000 20 10 1000 ?  \*> 1.1.2.0/24 2.2.2.254 0 2000 20 10 1000 ?  \*> 1.1.3.0/24 2.2.2.254 0 2000 20 10 1000 ?  \*> 1.1.11.0/24 2.2.2.254 0 2000 20 10 1000 ?  \*> 1.1.12.0/24 2.2.2.254 0 2000 20 10 1000 ?  \*> 1.1.13.0/24 2.2.2.254 0 2000 20 10 1000 ?  \*> 2.2.1.0/24 2.2.2.254 0 2000 ?  Network Next Hop Metric LocPrf Weight Path  r> 2.2.2.0/24 2.2.2.254 0 0 2000 ?  \*> 2.2.3.0/24 2.2.2.254 0 2000 ?  \*> 2.2.21.0/24 2.2.2.254 0 2000 ?  \*> 2.2.22.0/24 2.2.2.254 0 0 2000 ?  \*> 2.2.23.0/24 2.2.2.254 0 2000 ?  \*> 10.0.11.0/24 2.2.2.254 0 2000 20 10 1000 1100 i  \*> 10.0.21.0/24 2.2.2.254 0 2000 2100 i  \*> 10.1.1.1/32 2.2.2.254 0 2000 20 10 1000 ?  \*> 10.1.1.2/32 2.2.2.254 0 2000 20 10 1000 ?  \*> 10.1.1.3/32 2.2.2.254 0 2000 20 10 1000 ?  \*> 10.1.1.254/32 2.2.2.254 0 2000 20 10 1000 ?  \*> 10.2.2.1/32 2.2.2.254 0 2000 ?  \*> 10.2.2.2/32 2.2.2.254 0 0 2000 ?  \*> 10.2.2.3/32 2.2.2.254 0 2000 ?  \*> 10.2.2.254/32 2.2.2.254 0 2000 ?  \*> 10.10.10.0/24 2.2.2.254 0 2000 20 10 ?  \*> 10.123.123.1/32 2.2.2.254 0 2000 20 10 ?  Network Next Hop Metric LocPrf Weight Path  \*> 10.123.123.2/32 2.2.2.254 0 2000 20 ?  \*> 12.12.12.0/24 2.2.2.254 0 2000 20 ?  \*> 20.20.20.0/24 2.2.2.254 0 2000 ?  \*> 172.16.12.0/24 2.2.2.254 0 2000 20 10 1000 1200 i  \*> 172.16.22.0/24 0.0.0.0 0 32768 i  \*> 192.168.13.0 2.2.2.254 0 2000 20 10 1000 1300 i  \*> 192.168.23.0 2.2.2.254 0 2000 2300 i  \*> 200.11.1.0 2.2.2.254 0 2000 20 10 1000 1100 i  \*> 200.11.2.0 2.2.2.254 0 2000 20 10 1000 1100 i  \*> 200.11.3.0 2.2.2.254 0 2000 20 10 1000 1100 i  \*> 200.11.4.0 2.2.2.254 0 2000 20 10 1000 1100 i  \*> 200.11.5.0 2.2.2.254 0 2000 20 10 1000 1100 i  \*> 200.11.6.0 2.2.2.254 0 2000 20 10 1000 1100 i  \*> 200.11.7.0 2.2.2.254 0 2000 20 10 1000 1100 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.11.8.0 2.2.2.254 0 2000 20 10 1000 1100 i  \*> 200.11.9.0 2.2.2.254 0 2000 20 10 1000 1100 i  \*> 200.11.10.0 2.2.2.254 0 2000 20 10 1000 1100 i  \*> 200.11.11.0 2.2.2.254 0 2000 20 10 1000 1100 i  \*> 200.11.12.0 2.2.2.254 0 2000 20 10 1000 1100 i  \*> 200.11.13.0 2.2.2.254 0 2000 20 10 1000 1100 i  \*> 200.11.14.0 2.2.2.254 0 2000 20 10 1000 1100 i  \*> 200.11.15.0 2.2.2.254 0 2000 20 10 1000 1100 i  \*> 200.12.1.0 2.2.2.254 0 2000 20 10 1000 1200 i  \*> 200.12.2.0 2.2.2.254 0 2000 20 10 1000 1200 i  \*> 200.12.3.0 2.2.2.254 0 2000 20 10 1000 1200 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.12.4.0 2.2.2.254 0 2000 20 10 1000 1200 i  \*> 200.12.5.0 2.2.2.254 0 2000 20 10 1000 1200 i  \*> 200.12.6.0 2.2.2.254 0 2000 20 10 1000 1200 i  \*> 200.12.7.0 2.2.2.254 0 2000 20 10 1000 1200 i  \*> 200.12.8.0 2.2.2.254 0 2000 20 10 1000 1200 i  \*> 200.12.9.0 2.2.2.254 0 2000 20 10 1000 1200 i  \*> 200.12.10.0 2.2.2.254 0 2000 20 10 1000 1200 i  \*> 200.12.11.0 2.2.2.254 0 2000 20 10 1000 1200 i  \*> 200.12.12.0 2.2.2.254 0 2000 20 10 1000 1200 i  \*> 200.12.13.0 2.2.2.254 0 2000 20 10 1000 1200 i  \*> 200.12.14.0 2.2.2.254 0 2000 20 10 1000 1200 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.12.15.0 2.2.2.254 0 2000 20 10 1000 1200 i  \*> 200.13.1.0 2.2.2.254 0 2000 20 10 1000 1300 i  \*> 200.13.2.0 2.2.2.254 0 2000 20 10 1000 1300 i  \*> 200.13.3.0 2.2.2.254 0 2000 20 10 1000 1300 i  \*> 200.13.4.0 2.2.2.254 0 2000 20 10 1000 1300 i  \*> 200.13.5.0 2.2.2.254 0 2000 20 10 1000 1300 i  \*> 200.13.6.0 2.2.2.254 0 2000 20 10 1000 1300 i  \*> 200.13.7.0 2.2.2.254 0 2000 20 10 1000 1300 i  \*> 200.13.8.0 2.2.2.254 0 2000 20 10 1000 1300 i  \*> 200.13.9.0 2.2.2.254 0 2000 20 10 1000 1300 i  \*> 200.13.10.0 2.2.2.254 0 2000 20 10 1000 1300 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.13.11.0 2.2.2.254 0 2000 20 10 1000 1300 i  \*> 200.13.12.0 2.2.2.254 0 2000 20 10 1000 1300 i  \*> 200.13.13.0 2.2.2.254 0 2000 20 10 1000 1300 i  \*> 200.13.14.0 2.2.2.254 0 2000 20 10 1000 1300 i  \*> 200.13.15.0 2.2.2.254 0 2000 20 10 1000 1300 i  \*> 200.21.1.0 2.2.2.254 0 2000 2100 i  \*> 200.21.2.0 2.2.2.254 0 2000 2100 i  \*> 200.21.3.0 2.2.2.254 0 2000 2100 i  \*> 200.21.4.0 2.2.2.254 0 2000 2100 i  \*> 200.21.5.0 2.2.2.254 0 2000 2100 i  \*> 200.21.6.0 2.2.2.254 0 2000 2100 i  \*> 200.21.7.0 2.2.2.254 0 2000 2100 i  \*> 200.21.8.0 2.2.2.254 0 2000 2100 i  \*> 200.21.9.0 2.2.2.254 0 2000 2100 i  \*> 200.21.10.0 2.2.2.254 0 2000 2100 i  \*> 200.21.11.0 2.2.2.254 0 2000 2100 i  \*> 200.21.12.0 2.2.2.254 0 2000 2100 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.21.13.0 2.2.2.254 0 2000 2100 i  \*> 200.21.14.0 2.2.2.254 0 2000 2100 i  \*> 200.21.15.0 2.2.2.254 0 2000 2100 i  \*> 200.22.1.0 0.0.0.0 0 32768 i  \*> 200.22.2.0 0.0.0.0 0 32768 i  \*> 200.22.3.0 0.0.0.0 0 32768 i  \*> 200.22.4.0 0.0.0.0 0 32768 i  \*> 200.22.5.0 0.0.0.0 0 32768 i  \*> 200.22.6.0 0.0.0.0 0 32768 i  \*> 200.22.7.0 0.0.0.0 0 32768 i  \*> 200.22.8.0 0.0.0.0 0 32768 i  \*> 200.22.9.0 0.0.0.0 0 32768 i  \*> 200.22.10.0 0.0.0.0 0 32768 i  \*> 200.22.11.0 0.0.0.0 0 32768 i  \*> 200.22.12.0 0.0.0.0 0 32768 i  \*> 200.22.13.0 0.0.0.0 0 32768 i  \*> 200.22.14.0 0.0.0.0 0 32768 i  \*> 200.22.15.0 0.0.0.0 0 32768 i  \*> 200.23.1.0 2.2.2.254 0 2000 2300 i  \*> 200.23.2.0 2.2.2.254 0 2000 2300 i  \*> 200.23.3.0 2.2.2.254 0 2000 2300 i  \*> 200.23.4.0 2.2.2.254 0 2000 2300 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.23.5.0 2.2.2.254 0 2000 2300 i  \*> 200.23.6.0 2.2.2.254 0 2000 2300 i  \*> 200.23.7.0 2.2.2.254 0 2000 2300 i  \*> 200.23.8.0 2.2.2.254 0 2000 2300 i  \*> 200.23.9.0 2.2.2.254 0 2000 2300 i  \*> 200.23.10.0 2.2.2.254 0 2000 2300 i  \*> 200.23.11.0 2.2.2.254 0 2000 2300 i  \*> 200.23.12.0 2.2.2.254 0 2000 2300 i  \*> 200.23.13.0 2.2.2.254 0 2000 2300 i  \*> 200.23.14.0 2.2.2.254 0 2000 2300 i  \*> 200.23.15.0 2.2.2.254 0 2000 2300 i |

* Record the configurations in this task.

ISP\_A-P:

|  |
| --- |
| ISP\_A-P(config)#do sh run | s bgp  router bgp 1000  bgp log-neighbor-changes  redistribute connected  neighbor 10.1.1.1 remote-as 1000  neighbor 10.1.1.1 update-source Loopback0  neighbor 10.1.1.1 route-reflector-client  neighbor 10.1.1.1 next-hop-self  neighbor 10.1.1.2 remote-as 1000  neighbor 10.1.1.2 update-source Loopback0  neighbor 10.1.1.2 route-reflector-client  neighbor 10.1.1.2 next-hop-self  neighbor 10.1.1.3 remote-as 1000  neighbor 10.1.1.3 update-source Loopback0  neighbor 10.1.1.3 route-reflector-client  neighbor 10.1.1.3 next-hop-self  neighbor 10.10.10.254 remote-as 10 |

ISP\_B-P:

|  |
| --- |
| ISP\_B-P(config)#do sh run | s bgp  router bgp 2000  bgp log-neighbor-changes  redistribute connected  neighbor 10.2.2.1 remote-as 2000  neighbor 10.2.2.1 update-source Loopback0  neighbor 10.2.2.1 route-reflector-client  neighbor 10.2.2.1 next-hop-self  neighbor 10.2.2.2 remote-as 2000  neighbor 10.2.2.2 update-source Loopback0  neighbor 10.2.2.2 route-reflector-client  neighbor 10.2.2.2 next-hop-self  neighbor 10.2.2.3 remote-as 2000  neighbor 10.2.2.3 update-source Loopback0  neighbor 10.2.2.3 route-reflector-client  neighbor 10.2.2.3 next-hop-self  neighbor 20.20.20.254 remote-as 20 |

RSP1:

|  |
| --- |
| RSP1(config)#do sh run | s bgp  router bgp 10  bgp log-neighbor-changes  redistribute connected  neighbor 10.10.10.1 remote-as 1000  neighbor 12.12.12.2 remote-as 20 |

RSP2:

|  |
| --- |
| RSP2(config)#do sh run | s bgp  router bgp 20  bgp log-neighbor-changes  redistribute connected  neighbor 12.12.12.1 remote-as 10  neighbor 20.20.20.1 remote-as 2000 |

**Task 5: Configuration of eBGP between CE and IX in each site**

* Record the BGP tables from each IX.

S1\_IX:

|  |
| --- |
| S1\_IX(config-if)#do sh ip bgp  BGP table version is 182, local router ID is 172.16.11.1  Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,  r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,  x best-external, a additional-path, c RIB-compressed,  t secondary path,  Origin codes: i - IGP, e - EGP, ? - incomplete  RPKI validation codes: V valid, I invalid, N Not found  Network Next Hop Metric LocPrf Weight Path  \*> 1.1.1.0/24 11.11.11.1 0 1100 1000 ?  \*> 1.1.2.0/24 11.11.11.1 0 1100 1000 ?  \*> 1.1.3.0/24 11.11.11.1 0 1100 1000 ?  \*> 1.1.11.0/24 11.11.11.1 0 1100 1000 ?  \*> 1.1.12.0/24 11.11.11.1 0 1100 1000 ?  \*> 1.1.13.0/24 11.11.11.1 0 1100 1000 ?  \*> 2.2.1.0/24 11.11.11.2 0 2100 2000 ?  \*> 2.2.2.0/24 11.11.11.2 0 2100 2000 ?  \*> 2.2.3.0/24 11.11.11.2 0 2100 2000 ?  \*> 2.2.21.0/24 11.11.11.2 0 2100 2000 ?  Network Next Hop Metric LocPrf Weight Path  \*> 2.2.22.0/24 11.11.11.2 0 2100 2000 ?  \*> 2.2.23.0/24 11.11.11.2 0 2100 2000 ?  \*> 10.0.11.0/24 11.11.11.1 0 0 1100 i  \*> 10.0.21.0/24 11.11.11.2 0 0 2100 i  \*> 10.1.1.1/32 11.11.11.1 0 1100 1000 ?  \*> 10.1.1.2/32 11.11.11.1 0 1100 1000 ?  \*> 10.1.1.3/32 11.11.11.1 0 1100 1000 ?  \*> 10.1.1.254/32 11.11.11.1 0 1100 1000 ?  \*> 10.2.2.1/32 11.11.11.2 0 2100 2000 ?  \*> 10.2.2.2/32 11.11.11.2 0 2100 2000 ?  \*> 10.2.2.3/32 11.11.11.2 0 2100 2000 ?  \*> 10.2.2.254/32 11.11.11.2 0 2100 2000 ?  \* 10.10.10.0/24 11.11.11.2 0 2100 2000 20 10 ?  \*> 11.11.11.1 0 1100 1000 ?  \* 10.123.123.1/32 11.11.11.2 0 2100 2000 20 10 ?  \*> 11.11.11.1 0 1100 1000 10 ?  \*> 10.123.123.2/32 11.11.11.2 0 2100 2000 20 ?  \* 11.11.11.1 0 1100 1000 10 20 ?  \* 12.12.12.0/24 11.11.11.2 0 2100 2000 20 ?  Network Next Hop Metric LocPrf Weight Path  \*> 11.11.11.1 0 1100 1000 10 ?  \*> 20.20.20.0/24 11.11.11.2 0 2100 2000 ?  \* 11.11.11.1 0 1100 1000 10 20 ?  \*> 172.16.12.0/24 11.11.11.1 0 1100 1000 1200 i  \*> 172.16.22.0/24 11.11.11.2 0 2100 2000 2200 i  \*> 192.168.13.0 11.11.11.1 0 1100 1000 1300 i  \*> 192.168.23.0 11.11.11.2 0 2100 2000 2300 i  \*> 200.11.1.0 11.11.11.1 0 0 1100 i  \*> 200.11.2.0 11.11.11.1 0 0 1100 i  \*> 200.11.3.0 11.11.11.1 0 0 1100 i  \*> 200.11.4.0 11.11.11.1 0 0 1100 i  \*> 200.11.5.0 11.11.11.1 0 0 1100 i  \*> 200.11.6.0 11.11.11.1 0 0 1100 i  \*> 200.11.7.0 11.11.11.1 0 0 1100 i  \*> 200.11.8.0 11.11.11.1 0 0 1100 i  \*> 200.11.9.0 11.11.11.1 0 0 1100 i  \*> 200.11.10.0 11.11.11.1 0 0 1100 i  \*> 200.11.11.0 11.11.11.1 0 0 1100 i  \*> 200.11.12.0 11.11.11.1 0 0 1100 i  \*> 200.11.13.0 11.11.11.1 0 0 1100 i  \*> 200.11.14.0 11.11.11.1 0 0 1100 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.11.15.0 11.11.11.1 0 0 1100 i  \*> 200.12.1.0 11.11.11.1 0 1100 1000 1200 i  \*> 200.12.2.0 11.11.11.1 0 1100 1000 1200 i  \*> 200.12.3.0 11.11.11.1 0 1100 1000 1200 i  \*> 200.12.4.0 11.11.11.1 0 1100 1000 1200 i  \*> 200.12.5.0 11.11.11.1 0 1100 1000 1200 i  \*> 200.12.6.0 11.11.11.1 0 1100 1000 1200 i  \*> 200.12.7.0 11.11.11.1 0 1100 1000 1200 i  \*> 200.12.8.0 11.11.11.1 0 1100 1000 1200 i  \*> 200.12.9.0 11.11.11.1 0 1100 1000 1200 i  \*> 200.12.10.0 11.11.11.1 0 1100 1000 1200 i  \*> 200.12.11.0 11.11.11.1 0 1100 1000 1200 i  \*> 200.12.12.0 11.11.11.1 0 1100 1000 1200 i  \*> 200.12.13.0 11.11.11.1 0 1100 1000 1200 i  \*> 200.12.14.0 11.11.11.1 0 1100 1000 1200 i  \*> 200.12.15.0 11.11.11.1 0 1100 1000 1200 i  \*> 200.13.1.0 11.11.11.1 0 1100 1000 1300 i  \*> 200.13.2.0 11.11.11.1 0 1100 1000 1300 i  \*> 200.13.3.0 11.11.11.1 0 1100 1000 1300 i  \*> 200.13.4.0 11.11.11.1 0 1100 1000 1300 i  \*> 200.13.5.0 11.11.11.1 0 1100 1000 1300 i  \*> 200.13.6.0 11.11.11.1 0 1100 1000 1300 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.13.7.0 11.11.11.1 0 1100 1000 1300 i  \*> 200.13.8.0 11.11.11.1 0 1100 1000 1300 i  \*> 200.13.9.0 11.11.11.1 0 1100 1000 1300 i  \*> 200.13.10.0 11.11.11.1 0 1100 1000 1300 i  \*> 200.13.11.0 11.11.11.1 0 1100 1000 1300 i  \*> 200.13.12.0 11.11.11.1 0 1100 1000 1300 i  \*> 200.13.13.0 11.11.11.1 0 1100 1000 1300 i  \*> 200.13.14.0 11.11.11.1 0 1100 1000 1300 i  \*> 200.13.15.0 11.11.11.1 0 1100 1000 1300 i  \*> 200.21.1.0 11.11.11.2 0 0 2100 i  \*> 200.21.2.0 11.11.11.2 0 0 2100 i  \*> 200.21.3.0 11.11.11.2 0 0 2100 i  \*> 200.21.4.0 11.11.11.2 0 0 2100 i  \*> 200.21.5.0 11.11.11.2 0 0 2100 i  \*> 200.21.6.0 11.11.11.2 0 0 2100 i  \*> 200.21.7.0 11.11.11.2 0 0 2100 i  \*> 200.21.8.0 11.11.11.2 0 0 2100 i  \*> 200.21.9.0 11.11.11.2 0 0 2100 i  \*> 200.21.10.0 11.11.11.2 0 0 2100 i  \*> 200.21.11.0 11.11.11.2 0 0 2100 i  \*> 200.21.12.0 11.11.11.2 0 0 2100 i  \*> 200.21.13.0 11.11.11.2 0 0 2100 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.21.14.0 11.11.11.2 0 0 2100 i  \*> 200.21.15.0 11.11.11.2 0 0 2100 i  \*> 200.22.1.0 11.11.11.2 0 2100 2000 2200 i  \*> 200.22.2.0 11.11.11.2 0 2100 2000 2200 i  \*> 200.22.3.0 11.11.11.2 0 2100 2000 2200 i  \*> 200.22.4.0 11.11.11.2 0 2100 2000 2200 i  \*> 200.22.5.0 11.11.11.2 0 2100 2000 2200 i  \*> 200.22.6.0 11.11.11.2 0 2100 2000 2200 i  \*> 200.22.7.0 11.11.11.2 0 2100 2000 2200 i  \*> 200.22.8.0 11.11.11.2 0 2100 2000 2200 i  \*> 200.22.9.0 11.11.11.2 0 2100 2000 2200 i  \*> 200.22.10.0 11.11.11.2 0 2100 2000 2200 i  \*> 200.22.11.0 11.11.11.2 0 2100 2000 2200 i  \*> 200.22.12.0 11.11.11.2 0 2100 2000 2200 i  \*> 200.22.13.0 11.11.11.2 0 2100 2000 2200 i  \*> 200.22.14.0 11.11.11.2 0 2100 2000 2200 i  \*> 200.22.15.0 11.11.11.2 0 2100 2000 2200 i  \*> 200.23.1.0 11.11.11.2 0 2100 2000 2300 i  \*> 200.23.2.0 11.11.11.2 0 2100 2000 2300 i  \*> 200.23.3.0 11.11.11.2 0 2100 2000 2300 i  \*> 200.23.4.0 11.11.11.2 0 2100 2000 2300 i  \*> 200.23.5.0 11.11.11.2 0 2100 2000 2300 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.23.6.0 11.11.11.2 0 2100 2000 2300 i  \*> 200.23.7.0 11.11.11.2 0 2100 2000 2300 i  \*> 200.23.8.0 11.11.11.2 0 2100 2000 2300 i  \*> 200.23.9.0 11.11.11.2 0 2100 2000 2300 i  \*> 200.23.10.0 11.11.11.2 0 2100 2000 2300 i  \*> 200.23.11.0 11.11.11.2 0 2100 2000 2300 i  \*> 200.23.12.0 11.11.11.2 0 2100 2000 2300 i  \*> 200.23.13.0 11.11.11.2 0 2100 2000 2300 i  \*> 200.23.14.0 11.11.11.2 0 2100 2000 2300 i  \*> 200.23.15.0 11.11.11.2 0 2100 2000 2300 i |

S2\_IX:

|  |
| --- |
| S2\_IX(config)#do sh ip bgp  BGP table version is 122, local router ID is 172.16.22.1  Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,  r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,  x best-external, a additional-path, c RIB-compressed,  t secondary path,  Origin codes: i - IGP, e - EGP, ? - incomplete  RPKI validation codes: V valid, I invalid, N Not found  Network Next Hop Metric LocPrf Weight Path  \*> 1.1.1.0/24 22.22.22.1 0 1200 1000 ?  \*> 1.1.2.0/24 22.22.22.1 0 1200 1000 ?  \*> 1.1.3.0/24 22.22.22.1 0 1200 1000 ?  \*> 1.1.11.0/24 22.22.22.1 0 1200 1000 ?  \*> 1.1.12.0/24 22.22.22.1 0 1200 1000 ?  \*> 1.1.13.0/24 22.22.22.1 0 1200 1000 ?  \*> 2.2.1.0/24 22.22.22.2 0 2200 2000 ?  \*> 2.2.2.0/24 22.22.22.2 0 2200 2000 ?  \*> 2.2.3.0/24 22.22.22.2 0 2200 2000 ?  \*> 2.2.21.0/24 22.22.22.2 0 2200 2000 ?  \*> 2.2.22.0/24 22.22.22.2 0 2200 2000 ?  \*> 2.2.23.0/24 22.22.22.2 0 2200 2000 ?  \* 10.0.11.0/24 22.22.22.2 0 2200 2000 2100 1111 1100 i  Network Next Hop Metric LocPrf Weight Path  \*> 22.22.22.1 0 1200 1000 1100 i  \*> 10.0.21.0/24 22.22.22.2 0 2200 2000 2100 i  \* 22.22.22.1 0 1200 1000 1100 1111 2100 i  \*> 10.1.1.1/32 22.22.22.1 0 1200 1000 ?  \*> 10.1.1.2/32 22.22.22.1 0 1200 1000 ?  \*> 10.1.1.3/32 22.22.22.1 0 1200 1000 ?  \*> 10.1.1.254/32 22.22.22.1 0 1200 1000 ?  \*> 10.2.2.1/32 22.22.22.2 0 2200 2000 ?  \*> 10.2.2.2/32 22.22.22.2 0 2200 2000 ?  \*> 10.2.2.3/32 22.22.22.2 0 2200 2000 ?  \*> 10.2.2.254/32 22.22.22.2 0 2200 2000 ?  \* 10.10.10.0/24 22.22.22.2 0 2200 2000 20 10 ?  \*> 22.22.22.1 0 1200 1000 ?  \* 10.123.123.1/32 22.22.22.2 0 2200 2000 20 10 ?  \*> 22.22.22.1 0 1200 1000 10 ?  \*> 10.123.123.2/32 22.22.22.2 0 2200 2000 20 ?  \* 22.22.22.1 0 1200 1000 10 20 ?  \* 12.12.12.0/24 22.22.22.2 0 2200 2000 20 ?  Network Next Hop Metric LocPrf Weight Path  \*> 22.22.22.1 0 1200 1000 10 ?  \*> 20.20.20.0/24 22.22.22.2 0 2200 2000 ?  \* 22.22.22.1 0 1200 1000 10 20 ?  \*> 172.16.12.0/24 22.22.22.1 0 0 1200 i  \*> 172.16.22.0/24 22.22.22.2 0 0 2200 i  \* 192.168.13.0 22.22.22.2 0 2200 2000 2300 3333 1300 i  \*> 22.22.22.1 0 1200 1000 1300 i  \*> 192.168.23.0 22.22.22.2 0 2200 2000 2300 i  \* 22.22.22.1 0 1200 1000 1300 3333 2300 i  \* 200.11.1.0 22.22.22.2 0 2200 2000 2100 1111 1100 i  \*> 22.22.22.1 0 1200 1000 1100 i  \* 200.11.2.0 22.22.22.2 0 2200 2000 2100 1111 1100 i  \*> 22.22.22.1 0 1200 1000 1100 i  \* 200.11.3.0 22.22.22.2 0 2200 2000 2100 1111 1100 i  \*> 22.22.22.1 0 1200 1000 1100 i  \* 200.11.4.0 22.22.22.2 0 2200 2000 2100 1111 1100 i  Network Next Hop Metric LocPrf Weight Path  \*> 22.22.22.1 0 1200 1000 1100 i  \* 200.11.5.0 22.22.22.2 0 2200 2000 2100 1111 1100 i  \*> 22.22.22.1 0 1200 1000 1100 i  \* 200.11.6.0 22.22.22.2 0 2200 2000 2100 1111 1100 i  \*> 22.22.22.1 0 1200 1000 1100 i  \* 200.11.7.0 22.22.22.2 0 2200 2000 2100 1111 1100 i  \*> 22.22.22.1 0 1200 1000 1100 i  \* 200.11.8.0 22.22.22.2 0 2200 2000 2100 1111 1100 i  \*> 22.22.22.1 0 1200 1000 1100 i  \* 200.11.9.0 22.22.22.2 0 2200 2000 2100 1111 1100 i  \*> 22.22.22.1 0 1200 1000 1100 i  \* 200.11.10.0 22.22.22.2 0 2200 2000 2100 1111 1100 i  \*> 22.22.22.1 0 1200 1000 1100 i  \* 200.11.11.0 22.22.22.2 0 2200 2000 2100 1111 1100 i  \*> 22.22.22.1 0 1200 1000 1100 i  Network Next Hop Metric LocPrf Weight Path  \* 200.11.12.0 22.22.22.2 0 2200 2000 2100 1111 1100 i  \*> 22.22.22.1 0 1200 1000 1100 i  \* 200.11.13.0 22.22.22.2 0 2200 2000 2100 1111 1100 i  \*> 22.22.22.1 0 1200 1000 1100 i  \* 200.11.14.0 22.22.22.2 0 2200 2000 2100 1111 1100 i  \*> 22.22.22.1 0 1200 1000 1100 i  \* 200.11.15.0 22.22.22.2 0 2200 2000 2100 1111 1100 i  \*> 22.22.22.1 0 1200 1000 1100 i  \*> 200.12.1.0 22.22.22.1 0 0 1200 i  \*> 200.12.2.0 22.22.22.1 0 0 1200 i  \*> 200.12.3.0 22.22.22.1 0 0 1200 i  \*> 200.12.4.0 22.22.22.1 0 0 1200 i  \*> 200.12.5.0 22.22.22.1 0 0 1200 i  \*> 200.12.6.0 22.22.22.1 0 0 1200 i  \*> 200.12.7.0 22.22.22.1 0 0 1200 i  \*> 200.12.8.0 22.22.22.1 0 0 1200 i  \*> 200.12.9.0 22.22.22.1 0 0 1200 i  \*> 200.12.10.0 22.22.22.1 0 0 1200 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.12.11.0 22.22.22.1 0 0 1200 i  \*> 200.12.12.0 22.22.22.1 0 0 1200 i  \*> 200.12.13.0 22.22.22.1 0 0 1200 i  \*> 200.12.14.0 22.22.22.1 0 0 1200 i  \*> 200.12.15.0 22.22.22.1 0 0 1200 i  \* 200.13.1.0 22.22.22.2 0 2200 2000 2300 3333 1300 i  \*> 22.22.22.1 0 1200 1000 1300 i  \* 200.13.2.0 22.22.22.2 0 2200 2000 2300 3333 1300 i  \*> 22.22.22.1 0 1200 1000 1300 i  \* 200.13.3.0 22.22.22.2 0 2200 2000 2300 3333 1300 i  \*> 22.22.22.1 0 1200 1000 1300 i  \* 200.13.4.0 22.22.22.2 0 2200 2000 2300 3333 1300 i  \*> 22.22.22.1 0 1200 1000 1300 i  \* 200.13.5.0 22.22.22.2 0 2200 2000 2300 3333 1300 i  \*> 22.22.22.1 0 1200 1000 1300 i  \* 200.13.6.0 22.22.22.2 0 2200 2000 2300 3333 1300 i  Network Next Hop Metric LocPrf Weight Path  \*> 22.22.22.1 0 1200 1000 1300 i  \* 200.13.7.0 22.22.22.2 0 2200 2000 2300 3333 1300 i  \*> 22.22.22.1 0 1200 1000 1300 i  \* 200.13.8.0 22.22.22.2 0 2200 2000 2300 3333 1300 i  \*> 22.22.22.1 0 1200 1000 1300 i  \* 200.13.9.0 22.22.22.2 0 2200 2000 2300 3333 1300 i  \*> 22.22.22.1 0 1200 1000 1300 i  \* 200.13.10.0 22.22.22.2 0 2200 2000 2300 3333 1300 i  \*> 22.22.22.1 0 1200 1000 1300 i  \* 200.13.11.0 22.22.22.2 0 2200 2000 2300 3333 1300 i  \*> 22.22.22.1 0 1200 1000 1300 i  \* 200.13.12.0 22.22.22.2 0 2200 2000 2300 3333 1300 i  \*> 22.22.22.1 0 1200 1000 1300 i  \* 200.13.13.0 22.22.22.2 0 2200 2000 2300 3333 1300 i  \*> 22.22.22.1 0 1200 1000 1300 i  Network Next Hop Metric LocPrf Weight Path  \* 200.13.14.0 22.22.22.2 0 2200 2000 2300 3333 1300 i  \*> 22.22.22.1 0 1200 1000 1300 i  \* 200.13.15.0 22.22.22.2 0 2200 2000 2300 3333 1300 i  \*> 22.22.22.1 0 1200 1000 1300 i  \*> 200.21.1.0 22.22.22.2 0 2200 2000 2100 i  \* 22.22.22.1 0 1200 1000 1100 1111 2100 i  \*> 200.21.2.0 22.22.22.2 0 2200 2000 2100 i  \* 22.22.22.1 0 1200 1000 1100 1111 2100 i  \*> 200.21.3.0 22.22.22.2 0 2200 2000 2100 i  \* 22.22.22.1 0 1200 1000 1100 1111 2100 i  \*> 200.21.4.0 22.22.22.2 0 2200 2000 2100 i  \* 22.22.22.1 0 1200 1000 1100 1111 2100 i  \*> 200.21.5.0 22.22.22.2 0 2200 2000 2100 i  \* 22.22.22.1 0 1200 1000 1100 1111 2100 i  \*> 200.21.6.0 22.22.22.2 0 2200 2000 2100 i  Network Next Hop Metric LocPrf Weight Path  \* 22.22.22.1 0 1200 1000 1100 1111 2100 i  \*> 200.21.7.0 22.22.22.2 0 2200 2000 2100 i  \* 22.22.22.1 0 1200 1000 1100 1111 2100 i  \*> 200.21.8.0 22.22.22.2 0 2200 2000 2100 i  \* 22.22.22.1 0 1200 1000 1100 1111 2100 i  \*> 200.21.9.0 22.22.22.2 0 2200 2000 2100 i  \* 22.22.22.1 0 1200 1000 1100 1111 2100 i  \*> 200.21.10.0 22.22.22.2 0 2200 2000 2100 i  \* 22.22.22.1 0 1200 1000 1100 1111 2100 i  \*> 200.21.11.0 22.22.22.2 0 2200 2000 2100 i  \* 22.22.22.1 0 1200 1000 1100 1111 2100 i  \*> 200.21.12.0 22.22.22.2 0 2200 2000 2100 i  \* 22.22.22.1 0 1200 1000 1100 1111 2100 i  \*> 200.21.13.0 22.22.22.2 0 2200 2000 2100 i  \* 22.22.22.1 0 1200 1000 1100 1111 2100 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.21.14.0 22.22.22.2 0 2200 2000 2100 i  \* 22.22.22.1 0 1200 1000 1100 1111 2100 i  \*> 200.21.15.0 22.22.22.2 0 2200 2000 2100 i  \* 22.22.22.1 0 1200 1000 1100 1111 2100 i  \*> 200.22.1.0 22.22.22.2 0 0 2200 i  \*> 200.22.2.0 22.22.22.2 0 0 2200 i  \*> 200.22.3.0 22.22.22.2 0 0 2200 i  \*> 200.22.4.0 22.22.22.2 0 0 2200 i  \*> 200.22.5.0 22.22.22.2 0 0 2200 i  \*> 200.22.6.0 22.22.22.2 0 0 2200 i  \*> 200.22.7.0 22.22.22.2 0 0 2200 i  \*> 200.22.8.0 22.22.22.2 0 0 2200 i  \*> 200.22.9.0 22.22.22.2 0 0 2200 i  \*> 200.22.10.0 22.22.22.2 0 0 2200 i  \*> 200.22.11.0 22.22.22.2 0 0 2200 i  \*> 200.22.12.0 22.22.22.2 0 0 2200 i  \*> 200.22.13.0 22.22.22.2 0 0 2200 i  \*> 200.22.14.0 22.22.22.2 0 0 2200 i  \*> 200.22.15.0 22.22.22.2 0 0 2200 i  \*> 200.23.1.0 22.22.22.2 0 2200 2000 2300 i  Network Next Hop Metric LocPrf Weight Path  \* 22.22.22.1 0 1200 1000 1300 3333 2300 i  \*> 200.23.2.0 22.22.22.2 0 2200 2000 2300 i  \* 22.22.22.1 0 1200 1000 1300 3333 2300 i  \*> 200.23.3.0 22.22.22.2 0 2200 2000 2300 i  \* 22.22.22.1 0 1200 1000 1300 3333 2300 i  \*> 200.23.4.0 22.22.22.2 0 2200 2000 2300 i  \* 22.22.22.1 0 1200 1000 1300 3333 2300 i  \*> 200.23.5.0 22.22.22.2 0 2200 2000 2300 i  \* 22.22.22.1 0 1200 1000 1300 3333 2300 i  \*> 200.23.6.0 22.22.22.2 0 2200 2000 2300 i  \* 22.22.22.1 0 1200 1000 1300 3333 2300 i  \*> 200.23.7.0 22.22.22.2 0 2200 2000 2300 i  \* 22.22.22.1 0 1200 1000 1300 3333 2300 i  \*> 200.23.8.0 22.22.22.2 0 2200 2000 2300 i  \* 22.22.22.1 0 1200 1000 1300 3333 2300 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.23.9.0 22.22.22.2 0 2200 2000 2300 i  \* 22.22.22.1 0 1200 1000 1300 3333 2300 i  \*> 200.23.10.0 22.22.22.2 0 2200 2000 2300 i  \* 22.22.22.1 0 1200 1000 1300 3333 2300 i  \*> 200.23.11.0 22.22.22.2 0 2200 2000 2300 i  \* 22.22.22.1 0 1200 1000 1300 3333 2300 i  \*> 200.23.12.0 22.22.22.2 0 2200 2000 2300 i  \* 22.22.22.1 0 1200 1000 1300 3333 2300 i  \*> 200.23.13.0 22.22.22.2 0 2200 2000 2300 i  \* 22.22.22.1 0 1200 1000 1300 3333 2300 i  \*> 200.23.14.0 22.22.22.2 0 2200 2000 2300 i  \* 22.22.22.1 0 1200 1000 1300 3333 2300 i  \*> 200.23.15.0 22.22.22.2 0 2200 2000 2300 i  \* 22.22.22.1 0 1200 1000 1300 3333 2300 i |

S3\_IX:

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| S3\_IX(config)#do sh ip bgp  BGP table version is 182, local router ID is 172.16.33.1  Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,  r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,  x best-external, a additional-path, c RIB-compressed,  t secondary path,  Origin codes: i - IGP, e - EGP, ? - incomplete  RPKI validation codes: V valid, I invalid, N Not found  Network Next Hop Metric LocPrf Weight Path  \*> 1.1.1.0/24 33.33.33.1 0 1300 1000 ?  \*> 1.1.2.0/24 33.33.33.1 0 1300 1000 ?  \*> 1.1.3.0/24 33.33.33.1 0 1300 1000 ?  \*> 1.1.11.0/24 33.33.33.1 0 1300 1000 ?  \*> 1.1.12.0/24 33.33.33.1 0 1300 1000 ?  \*> 1.1.13.0/24 33.33.33.1 0 1300 1000 ?  \*> 2.2.1.0/24 33.33.33.2 0 2300 2000 ?  \*> 2.2.2.0/24 33.33.33.2 0 2300 2000 ?  \*> 2.2.3.0/24 33.33.33.2 0 2300 2000 ?  \*> 2.2.21.0/24 33.33.33.2 0 2300 2000 ?  \*> 2.2.22.0/24 33.33.33.2 0 2300 2000 ?  \*> 2.2.23.0/24 33.33.33.2 0 2300 2000 ?  \* 10.0.11.0/24 33.33.33.2 0 2300 2000 2100 1111 1100 i  Network Next Hop Metric LocPrf Weight Path  \*> 33.33.33.1 0 1300 1000 1100 i  \*> 10.0.21.0/24 33.33.33.2 0 2300 2000 2100 i  \* 33.33.33.1 0 1300 1000 1100 1111 2100 i  \*> 10.1.1.1/32 33.33.33.1 0 1300 1000 ?  \*> 10.1.1.2/32 33.33.33.1 0 1300 1000 ?  \*> 10.1.1.3/32 33.33.33.1 0 1300 1000 ?  \*> 10.1.1.254/32 33.33.33.1 0 1300 1000 ?  \*> 10.2.2.1/32 33.33.33.2 0 2300 2000 ?  \*> 10.2.2.2/32 33.33.33.2 0 2300 2000 ?  \*> 10.2.2.3/32 33.33.33.2 0 2300 2000 ?  \*> 10.2.2.254/32 33.33.33.2 0 2300 2000 ?  \* 10.10.10.0/24 33.33.33.2 0 2300 2000 20 10 ?  \*> 33.33.33.1 0 1300 1000 ?  \* 10.123.123.1/32 33.33.33.2 0 2300 2000 20 10 ?  \*> 33.33.33.1 0 1300 1000 10 ?  \*> 10.123.123.2/32 33.33.33.2 0 2300 2000 20 ?  \* 33.33.33.1 0 1300 1000 10 20 ?  \* 12.12.12.0/24 33.33.33.2 0 2300 2000 20 ?  Network Next Hop Metric LocPrf Weight Path  \*> 33.33.33.1 0 1300 1000 10 ?  \*> 20.20.20.0/24 33.33.33.2 0 2300 2000 ?  \* 33.33.33.1 0 1300 1000 10 20 ?  \*> 172.16.12.0/24 33.33.33.1 0 1300 1000 1200 i  \*> 172.16.22.0/24 33.33.33.2 0 2300 2000 2200 i  \*> 192.168.13.0 33.33.33.1 0 0 1300 i  \*> 192.168.23.0 33.33.33.2 0 0 2300 i  \* 200.11.1.0 33.33.33.2 0 2300 2000 2100 1111 1100 i  \*> 33.33.33.1 0 1300 1000 1100 i  \* 200.11.2.0 33.33.33.2 0 2300 2000 2100 1111 1100 i  \*> 33.33.33.1 0 1300 1000 1100 i  \* 200.11.3.0 33.33.33.2 0 2300 2000 2100 1111 1100 i  \*> 33.33.33.1 0 1300 1000 1100 i  \* 200.11.4.0 33.33.33.2 0 2300 2000 2100 1111 1100 i  \*> 33.33.33.1 0 1300 1000 1100 i  \* 200.11.5.0 33.33.33.2 0 2300 2000 2100 1111 1100 i  Network Next Hop Metric LocPrf Weight Path  \*> 33.33.33.1 0 1300 1000 1100 i  \* 200.11.6.0 33.33.33.2 0 2300 2000 2100 1111 1100 i  \*> 33.33.33.1 0 1300 1000 1100 i  \* 200.11.7.0 33.33.33.2 0 2300 2000 2100 1111 1100 i  \*> 33.33.33.1 0 1300 1000 1100 i  \* 200.11.8.0 33.33.33.2 0 2300 2000 2100 1111 1100 i  \*> 33.33.33.1 0 1300 1000 1100 i  \* 200.11.9.0 33.33.33.2 0 2300 2000 2100 1111 1100 i  \*> 33.33.33.1 0 1300 1000 1100 i  \* 200.11.10.0 33.33.33.2 0 2300 2000 2100 1111 1100 i  \*> 33.33.33.1 0 1300 1000 1100 i  \* 200.11.11.0 33.33.33.2 0 2300 2000 2100 1111 1100 i  \*> 33.33.33.1 0 1300 1000 1100 i  \* 200.11.12.0 33.33.33.2 0 2300 2000 2100 1111 1100 i  \*> 33.33.33.1 0 1300 1000 1100 i  Network Next Hop Metric LocPrf Weight Path  \* 200.11.13.0 33.33.33.2 0 2300 2000 2100 1111 1100 i  \*> 33.33.33.1 0 1300 1000 1100 i  \* 200.11.14.0 33.33.33.2 0 2300 2000 2100 1111 1100 i  \*> 33.33.33.1 0 1300 1000 1100 i  \* 200.11.15.0 33.33.33.2 0 2300 2000 2100 1111 1100 i  \*> 33.33.33.1 0 1300 1000 1100 i  \*> 200.12.1.0 33.33.33.1 0 1300 1000 1200 i  \*> 200.12.2.0 33.33.33.1 0 1300 1000 1200 i  \*> 200.12.3.0 33.33.33.1 0 1300 1000 1200 i  \*> 200.12.4.0 33.33.33.1 0 1300 1000 1200 i  \*> 200.12.5.0 33.33.33.1 0 1300 1000 1200 i  \*> 200.12.6.0 33.33.33.1 0 1300 1000 1200 i  \*> 200.12.7.0 33.33.33.1 0 1300 1000 1200 i  \*> 200.12.8.0 33.33.33.1 0 1300 1000 1200 i  \*> 200.12.9.0 33.33.33.1 0 1300 1000 1200 i  \*> 200.12.10.0 33.33.33.1 0 1300 1000 1200 i  \*> 200.12.11.0 33.33.33.1 0 1300 1000 1200 i  \*> 200.12.12.0 33.33.33.1 0 1300 1000 1200 i  \*> 200.12.13.0 33.33.33.1 0 1300 1000 1200 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.12.14.0 33.33.33.1 0 1300 1000 1200 i  \*> 200.12.15.0 33.33.33.1 0 1300 1000 1200 i  \*> 200.13.1.0 33.33.33.1 0 0 1300 i  \*> 200.13.2.0 33.33.33.1 0 0 1300 i  \*> 200.13.3.0 33.33.33.1 0 0 1300 i  \*> 200.13.4.0 33.33.33.1 0 0 1300 i  \*> 200.13.5.0 33.33.33.1 0 0 1300 i  \*> 200.13.6.0 33.33.33.1 0 0 1300 i  \*> 200.13.7.0 33.33.33.1 0 0 1300 i  \*> 200.13.8.0 33.33.33.1 0 0 1300 i  \*> 200.13.9.0 33.33.33.1 0 0 1300 i  \*> 200.13.10.0 33.33.33.1 0 0 1300 i  \*> 200.13.11.0 33.33.33.1 0 0 1300 i  \*> 200.13.12.0 33.33.33.1 0 0 1300 i  \*> 200.13.13.0 33.33.33.1 0 0 1300 i  \*> 200.13.14.0 33.33.33.1 0 0 1300 i  \*> 200.13.15.0 33.33.33.1 0 0 1300 i  \*> 200.21.1.0 33.33.33.2 0 2300 2000 2100 i  \* 33.33.33.1 0 1300 1000 1100 1111 2100 i  \*> 200.21.2.0 33.33.33.2 0 2300 2000 2100 i  \* 33.33.33.1 0 1300 1000 1100 1111 2100 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.21.3.0 33.33.33.2 0 2300 2000 2100 i  \* 33.33.33.1 0 1300 1000 1100 1111 2100 i  \*> 200.21.4.0 33.33.33.2 0 2300 2000 2100 i  \* 33.33.33.1 0 1300 1000 1100 1111 2100 i  \*> 200.21.5.0 33.33.33.2 0 2300 2000 2100 i  \* 33.33.33.1 0 1300 1000 1100 1111 2100 i  \*> 200.21.6.0 33.33.33.2 0 2300 2000 2100 i  \* 33.33.33.1 0 1300 1000 1100 1111 2100 i  \*> 200.21.7.0 33.33.33.2 0 2300 2000 2100 i  \* 33.33.33.1 0 1300 1000 1100 1111 2100 i  \*> 200.21.8.0 33.33.33.2 0 2300 2000 2100 i  \* 33.33.33.1 0 1300 1000 1100 1111 2100 i  \*> 200.21.9.0 33.33.33.2 0 2300 2000 2100 i  \* 33.33.33.1 0 1300 1000 1100 1111 2100 i  \*> 200.21.10.0 33.33.33.2 0 2300 2000 2100 i  Network Next Hop Metric LocPrf Weight Path  \* 33.33.33.1 0 1300 1000 1100 1111 2100 i  \*> 200.21.11.0 33.33.33.2 0 2300 2000 2100 i  \* 33.33.33.1 0 1300 1000 1100 1111 2100 i  \*> 200.21.12.0 33.33.33.2 0 2300 2000 2100 i  \* 33.33.33.1 0 1300 1000 1100 1111 2100 i  \*> 200.21.13.0 33.33.33.2 0 2300 2000 2100 i  \* 33.33.33.1 0 1300 1000 1100 1111 2100 i  \*> 200.21.14.0 33.33.33.2 0 2300 2000 2100 i  \* 33.33.33.1 0 1300 1000 1100 1111 2100 i  \*> 200.21.15.0 33.33.33.2 0 2300 2000 2100 i  \* 33.33.33.1 0 1300 1000 1100 1111 2100 i  \*> 200.22.1.0 33.33.33.2 0 2300 2000 2200 i  \*> 200.22.2.0 33.33.33.2 0 2300 2000 2200 i  \*> 200.22.3.0 33.33.33.2 0 2300 2000 2200 i  \*> 200.22.4.0 33.33.33.2 0 2300 2000 2200 i  \*> 200.22.5.0 33.33.33.2 0 2300 2000 2200 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.22.6.0 33.33.33.2 0 2300 2000 2200 i  \*> 200.22.7.0 33.33.33.2 0 2300 2000 2200 i  \*> 200.22.8.0 33.33.33.2 0 2300 2000 2200 i  \*> 200.22.9.0 33.33.33.2 0 2300 2000 2200 i  \*> 200.22.10.0 33.33.33.2 0 2300 2000 2200 i  \*> 200.22.11.0 33.33.33.2 0 2300 2000 2200 i  \*> 200.22.12.0 33.33.33.2 0 2300 2000 2200 i  \*> 200.22.13.0 33.33.33.2 0 2300 2000 2200 i  \*> 200.22.14.0 33.33.33.2 0 2300 2000 2200 i  \*> 200.22.15.0 33.33.33.2 0 2300 2000 2200 i  \*> 200.23.1.0 33.33.33.2 0 0 2300 i  \*> 200.23.2.0 33.33.33.2 0 0 2300 i  \*> 200.23.3.0 33.33.33.2 0 0 2300 i  \*> 200.23.4.0 33.33.33.2 0 0 2300 i  \*> 200.23.5.0 33.33.33.2 0 0 2300 i  \*> 200.23.6.0 33.33.33.2 0 0 2300 i  \*> 200.23.7.0 33.33.33.2 0 0 2300 i  \*> 200.23.8.0 33.33.33.2 0 0 2300 i  \*> 200.23.9.0 33.33.33.2 0 0 2300 i  \*> 200.23.10.0 33.33.33.2 0 0 2300 i  \*> 200.23.11.0 33.33.33.2 0 0 2300 i  \*> 200.23.12.0 33.33.33.2 0 0 2300 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.23.13.0 33.33.33.2 0 0 2300 i  \*> 200.23.14.0 33.33.33.2 0 0 2300 i  \*> 200.23.15.0 33.33.33.2 0 0 2300 i |

* Record the configurations in this task.

ISP\_A-S1\_CE:

|  |
| --- |
| ISP\_A-S1\_CE(config)#do sh run | s bgp  router bgp 1100  bgp log-neighbor-changes  network 10.0.11.0 mask 255.255.255.0  network 200.11.1.0  network 200.11.2.0  network 200.11.3.0  network 200.11.4.0  network 200.11.5.0  network 200.11.6.0  network 200.11.7.0  network 200.11.8.0  network 200.11.9.0  network 200.11.10.0  network 200.11.11.0  network 200.11.12.0  network 200.11.13.0  network 200.11.14.0  network 200.11.15.0  neighbor 1.1.1.254 remote-as 1000  neighbor 11.11.11.254 remote-as 1111 |

ISP\_A-S2\_CE:

|  |
| --- |
| ISP\_A-S2\_CE(config)#do sh run | s bgp  router bgp 1200  bgp log-neighbor-changes  network 172.16.12.0 mask 255.255.255.0  network 200.12.1.0  network 200.12.2.0  network 200.12.3.0  network 200.12.4.0  network 200.12.5.0  network 200.12.6.0  network 200.12.7.0  network 200.12.8.0  network 200.12.9.0  network 200.12.10.0  network 200.12.11.0  network 200.12.12.0  network 200.12.13.0  network 200.12.14.0  network 200.12.15.0  neighbor 1.1.2.254 remote-as 1000  neighbor 22.22.22.254 remote-as 2222 |

ISP\_A-S3\_CE:

|  |
| --- |
| ISP\_A-S3\_CE(config)#do sh run | s bgp  router bgp 1300  bgp log-neighbor-changes  network 192.168.13.0  network 200.13.1.0  network 200.13.2.0  network 200.13.3.0  network 200.13.4.0  network 200.13.5.0  network 200.13.6.0  network 200.13.7.0  network 200.13.8.0  network 200.13.9.0  network 200.13.10.0  network 200.13.11.0  network 200.13.12.0  network 200.13.13.0  network 200.13.14.0  network 200.13.15.0  neighbor 1.1.3.254 remote-as 1000  neighbor 33.33.33.254 remote-as 3333 |

ISP\_B-S1\_CE:

|  |
| --- |
| ISP\_B-S1\_CE(config)#do sh run | s bgp  router bgp 2100  bgp log-neighbor-changes  network 10.0.21.0 mask 255.255.255.0  network 200.21.1.0  network 200.21.2.0  network 200.21.3.0  network 200.21.4.0  network 200.21.5.0  network 200.21.6.0  network 200.21.7.0  network 200.21.8.0  network 200.21.9.0  network 200.21.10.0  network 200.21.11.0  network 200.21.12.0  network 200.21.13.0  network 200.21.14.0  network 200.21.15.0  neighbor 2.2.1.254 remote-as 2000  neighbor 11.11.11.254 remote-as 1111 |

ISP\_B-S2\_CE:

|  |
| --- |
| ISP\_B-S2\_CE(config)#do sh run | s bgp  router bgp 2200  bgp log-neighbor-changes  network 172.16.22.0 mask 255.255.255.0  network 200.22.1.0  network 200.22.2.0  network 200.22.3.0  network 200.22.4.0  network 200.22.5.0  network 200.22.6.0  network 200.22.7.0  network 200.22.8.0  network 200.22.9.0  network 200.22.10.0  network 200.22.11.0  network 200.22.12.0  network 200.22.13.0  network 200.22.14.0  network 200.22.15.0  neighbor 2.2.2.254 remote-as 2000  neighbor 22.22.22.254 remote-as 2222 |

ISP\_B-S3\_CE:

|  |
| --- |
| ISP\_B-S3\_CE(config)#do sh run | s bgp  router bgp 2300  bgp log-neighbor-changes  network 192.168.23.0  network 200.23.1.0  network 200.23.2.0  network 200.23.3.0  network 200.23.4.0  network 200.23.5.0  network 200.23.6.0  network 200.23.7.0  network 200.23.8.0  network 200.23.9.0  network 200.23.10.0  network 200.23.11.0  network 200.23.12.0  network 200.23.13.0  network 200.23.14.0  network 200.23.15.0  neighbor 2.2.3.254 remote-as 2000  neighbor 33.33.33.254 remote-as 3333 |

S1\_IX:

|  |
| --- |
| !  interface GigabitEthernet0/1  switchport access vlan 11  switchport mode access  negotiation auto  !  interface GigabitEthernet0/2  switchport access vlan 11  switchport mode access  negotiation auto  !  !  router bgp 1111  bgp log-neighbor-changes  neighbor 11.11.11.1 remote-as 1100  neighbor 11.11.11.2 remote-as 2100  ! |

S2\_IX:

|  |
| --- |
| !  interface GigabitEthernet0/1  switchport access vlan 22  switchport mode access  negotiation auto  !  interface GigabitEthernet0/2  switchport access vlan 22  switchport mode access  negotiation auto  !  !  router bgp 2222  bgp log-neighbor-changes  neighbor 22.22.22.1 remote-as 1200  neighbor 22.22.22.2 remote-as 2200  ! |

S3\_IX:

|  |
| --- |
| !  interface GigabitEthernet0/1  switchport access vlan 33  switchport mode access  negotiation auto  !  interface GigabitEthernet0/2  switchport access vlan 33  switchport mode access  negotiation auto  !  !  router bgp 3333  bgp log-neighbor-changes  neighbor 33.33.33.1 remote-as 1300  neighbor 33.33.33.2 remote-as 2300  ! |

**Task 6: Fine tuning of BGP**

A) Prevention of CE to become transit AS between ISPs via IX

* Record the BGP route 200.22.1.0 on all ISP-A CEs by “show ip bgp 200.22.1.0”

ISP\_A-S1\_CE:

|  |
| --- |
| ISP\_A-S1\_CE(config)#do sh ip bgp 200.22.1.0  BGP routing table entry for 200.22.1.0/24, version 59  Paths: (2 available, best #1, table default)  Not advertised to any peer  Refresh Epoch 2  1111 2100 2000 2200  11.11.11.2 from 11.11.11.254 (172.16.11.1)  Origin IGP, localpref 100, valid, external, best  rx pathid: 0, tx pathid: 0x0  Refresh Epoch 1  1000 10 20 2000 2200  1.1.1.254 from 1.1.1.254 (10.1.1.1)  Origin IGP, localpref 100, valid, external  rx pathid: 0, tx pathid: 0 |

ISP\_A-S2\_CE:

|  |
| --- |
| ISP\_A-S2\_CE(config-router)#do show ip bgp 200.22.1.0  BGP routing table entry for 200.22.1.0/24, version 283  Paths: (2 available, best #2, table default)  Not advertised to any peer  Refresh Epoch 1  1000 10 20 2000 2200  1.1.2.254 from 1.1.2.254 (10.1.1.2)  Origin IGP, localpref 100, valid, external  rx pathid: 0, tx pathid: 0  Refresh Epoch 1  2222 2200  22.22.22.2 from 22.22.22.254 (172.16.22.1)  Origin IGP, localpref 100, valid, external, best  rx pathid: 0, tx pathid: 0x0 |

ISP\_A-S3\_CE:

|  |
| --- |
| ISP\_A-S3\_CE(config-router)#do show ip bgp 200.22.1.0  BGP routing table entry for 200.22.1.0/24, version 215  Paths: (2 available, best #1, table default)  Not advertised to any peer  Refresh Epoch 1  3333 2300 2000 2200  33.33.33.2 from 33.33.33.254 (172.16.33.1)  Origin IGP, localpref 100, valid, external, best  rx pathid: 0, tx pathid: 0x0  Refresh Epoch 1  1000 10 20 2000 2200  1.1.3.254 from 1.1.3.254 (10.1.1.3)  Origin IGP, localpref 100, valid, external  rx pathid: 0, tx pathid: 0 |

* Record the configurations in this task.

ISP\_A-S1\_CE:

|  |
| --- |
| ISP\_A-S1\_CE(config)#do sh run | s bgp  router bgp 1100  bgp log-neighbor-changes  network 10.0.11.0 mask 255.255.255.0  network 200.11.1.0  network 200.11.2.0  network 200.11.3.0  network 200.11.4.0  network 200.11.5.0  network 200.11.6.0  network 200.11.7.0  network 200.11.8.0  network 200.11.9.0  network 200.11.10.0  network 200.11.11.0  network 200.11.12.0  network 200.11.13.0  network 200.11.14.0  network 200.11.15.0  neighbor 1.1.1.254 remote-as 1000  neighbor 1.1.1.254 filter-list 1 out  neighbor 11.11.11.254 remote-as 1111  ISP\_A-S1\_CE(config)#do sh run | s access-list  ip as-path access-list 1 permit ^$ |

ISP\_A-S2\_CE:

|  |
| --- |
| ISP\_A-S2\_CE(config)#do sh run | s bgp  router bgp 1200  bgp log-neighbor-changes  network 172.16.12.0 mask 255.255.255.0  network 200.12.1.0  network 200.12.2.0  network 200.12.3.0  network 200.12.4.0  network 200.12.5.0  network 200.12.6.0  network 200.12.7.0  network 200.12.8.0  network 200.12.9.0  network 200.12.10.0  network 200.12.11.0  network 200.12.12.0  network 200.12.13.0  network 200.12.14.0  network 200.12.15.0  neighbor 1.1.2.254 remote-as 1000  neighbor 1.1.2.254 filter-list 1 out  neighbor 22.22.22.254 remote-as 2222  ISP\_A-S2\_CE(config)#do sh run | s access-list  ip as-path access-list 1 permit ^$ |

ISP\_A-S3\_CE:

|  |
| --- |
| ISP\_A-S3\_CE(config)#do sh run | s bgp  router bgp 1300  bgp log-neighbor-changes  network 192.168.13.0  network 200.13.1.0  network 200.13.2.0  network 200.13.3.0  network 200.13.4.0  network 200.13.5.0  network 200.13.6.0  network 200.13.7.0  network 200.13.8.0  network 200.13.9.0  network 200.13.10.0  network 200.13.11.0  network 200.13.12.0  network 200.13.13.0  network 200.13.14.0  network 200.13.15.0  neighbor 1.1.3.254 remote-as 1000  neighbor 1.1.3.254 filter-list 1 out  neighbor 33.33.33.254 remote-as 3333  ISP\_A-S3\_CE(config)#do sh run | s access-list  ip as-path access-list 1 permit ^$ |

ISP\_B-S1\_CE:

|  |
| --- |
| ISP\_B-S1\_CE(config)#do sh run | s bgp  router bgp 2100  bgp log-neighbor-changes  network 10.0.21.0 mask 255.255.255.0  network 200.21.1.0  network 200.21.2.0  network 200.21.3.0  network 200.21.4.0  network 200.21.5.0  network 200.21.6.0  network 200.21.7.0  network 200.21.8.0  network 200.21.9.0  network 200.21.10.0  network 200.21.11.0  network 200.21.12.0  network 200.21.13.0  network 200.21.14.0  network 200.21.15.0  neighbor 2.2.1.254 remote-as 2000  neighbor 2.2.1.254 filter-list 1 out  neighbor 11.11.11.254 remote-as 1111  ISP\_B-S1\_CE(config)#do sh run | s access-list  ip as-path access-list 1 permit ^$ |

ISP\_B-S2\_CE:

|  |
| --- |
| ISP\_B-S2\_CE(config)#do sh run | s bgp  router bgp 2200  bgp log-neighbor-changes  network 172.16.22.0 mask 255.255.255.0  network 200.22.1.0  network 200.22.2.0  network 200.22.3.0  network 200.22.4.0  network 200.22.5.0  network 200.22.6.0  network 200.22.7.0  network 200.22.8.0  network 200.22.9.0  network 200.22.10.0  network 200.22.11.0  network 200.22.12.0  network 200.22.13.0  network 200.22.14.0  network 200.22.15.0  neighbor 2.2.2.254 remote-as 2000  neighbor 2.2.2.254 filter-list 1 out  neighbor 22.22.22.254 remote-as 2222  ISP\_B-S2\_CE(config)#do sh run | s access-list  ip as-path access-list 1 permit ^$ |

ISP\_B-S3\_CE:

|  |
| --- |
| ISP\_B-S3\_CE(config)#do sh run | s bgp  router bgp 2300  bgp log-neighbor-changes  network 192.168.23.0  network 200.23.1.0  network 200.23.2.0  network 200.23.3.0  network 200.23.4.0  network 200.23.5.0  network 200.23.6.0  network 200.23.7.0  network 200.23.8.0  network 200.23.9.0  network 200.23.10.0  network 200.23.11.0  network 200.23.12.0  network 200.23.13.0  network 200.23.14.0  network 200.23.15.0  neighbor 2.2.3.254 remote-as 2000  neighbor 2.2.3.254 filter-list 1 out  neighbor 33.33.33.254 remote-as 3333  ISP\_B-S3\_CE(config)#do sh run | s access-list  ip as-path access-list 1 permit ^$ |

B) Prevention of IX to become transit AS between ISPs

By testing show ip bgp 200.21.1.0 in S1-IX:

|  |
| --- |
| S1\_IX(config)#do show ip bgp 200.21.1.0  BGP routing table entry for 200.21.1.0/24, version 147  Paths: (1 available, best #1, table default)  Advertised to update-groups:  1  Refresh Epoch 3  2100  11.11.11.2 from 11.11.11.2 (10.0.21.254)  Origin IGP, metric 0, localpref 100, valid, external, best  rx pathid: 0, tx pathid: 0x0 |

* Record the configurations in this task.

S1\_IX:

|  |
| --- |
| !  router bgp 1111  bgp log-neighbor-changes  neighbor 11.11.11.1 remote-as 1100  neighbor 11.11.11.1 route-map AS\_PATH\_FILTER in  neighbor 11.11.11.2 remote-as 2100  neighbor 11.11.11.2 route-map AS\_PATH\_FILTER in  !  ip as-path access-list 2 permit ^1100$  ip as-path access-list 2 permit ^2100$  !  route-map AS\_PATH\_FILTER permit 10  match as-path 2  ! |

S2\_IX:

|  |
| --- |
| !  router bgp 2222  bgp log-neighbor-changes  neighbor 22.22.22.1 remote-as 1200  neighbor 22.22.22.1 route-map AS\_PATH\_FILTER in  neighbor 22.22.22.2 remote-as 2200  neighbor 22.22.22.2 route-map AS\_PATH\_FILTER in  !  ip as-path access-list 2 permit ^1200$  ip as-path access-list 2 permit ^2200$  !  route-map AS\_PATH\_FILTER permit 10  match as-path 2  ! |

S3\_IX:

|  |
| --- |
| !  router bgp 3333  bgp log-neighbor-changes  neighbor 33.33.33.1 remote-as 1300  neighbor 33.33.33.1 route-map AS\_PATH\_FILTER in  neighbor 33.33.33.2 remote-as 2300  neighbor 33.33.33.2 route-map AS\_PATH\_FILTER in  !  ip as-path access-list 2 permit ^1300$  ip as-path access-list 2 permit ^2300$  !  route-map AS\_PATH\_FILTER permit 10  match as-path 2  ! |

C) Implementation of RFC 1918 in RSP, PE and IX

* Record the BGP table of the two P routers and the three IX routers by the command “show ip bgp”

ISP\_A-P:

|  |
| --- |
| ISP\_A-P(config)#do show ip bgp  BGP table version is 413, local router ID is 10.1.1.254  Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,  r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,  x best-external, a additional-path, c RIB-compressed,  t secondary path,  Origin codes: i - IGP, e - EGP, ? - incomplete  RPKI validation codes: V valid, I invalid, N Not found  Network Next Hop Metric LocPrf Weight Path  \*> 1.1.11.0/24 0.0.0.0 0 32768 ?  \*> 1.1.12.0/24 0.0.0.0 0 32768 ?  \*> 1.1.13.0/24 0.0.0.0 0 32768 ?  \*> 10.1.1.254/32 0.0.0.0 0 32768 ?  \*> 10.10.10.0/24 0.0.0.0 0 32768 ? |

ISP\_B-P:

|  |
| --- |
| ISP\_B-P(config)#do show ip bgp  BGP table version is 397, local router ID is 10.2.2.254  Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,  r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,  x best-external, a additional-path, c RIB-compressed,  t secondary path,  Origin codes: i - IGP, e - EGP, ? - incomplete  RPKI validation codes: V valid, I invalid, N Not found  Network Next Hop Metric LocPrf Weight Path  \*> 2.2.21.0/24 0.0.0.0 0 32768 ?  \*> 2.2.22.0/24 0.0.0.0 0 32768 ?  \*> 2.2.23.0/24 0.0.0.0 0 32768 ?  \*> 10.2.2.254/32 0.0.0.0 0 32768 ?  \*> 20.20.20.0/24 0.0.0.0 0 32768 ? |

S1\_IX:

|  |
| --- |
| S1\_IX(config-route-map)#do sh ip bgp  BGP table version is 273, local router ID is 172.16.11.1  Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,  r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,  x best-external, a additional-path, c RIB-compressed,  t secondary path,  Origin codes: i - IGP, e - EGP, ? - incomplete  RPKI validation codes: V valid, I invalid, N Not found  Network Next Hop Metric LocPrf Weight Path  \*> 10.0.11.0/24 11.11.11.1 0 0 1100 i  \*> 10.0.21.0/24 11.11.11.2 0 0 2100 i  \*> 200.11.1.0 11.11.11.1 0 0 1100 i  \*> 200.11.2.0 11.11.11.1 0 0 1100 i  \*> 200.11.3.0 11.11.11.1 0 0 1100 i  \*> 200.11.4.0 11.11.11.1 0 0 1100 i  \*> 200.11.5.0 11.11.11.1 0 0 1100 i  \*> 200.11.6.0 11.11.11.1 0 0 1100 i  \*> 200.11.7.0 11.11.11.1 0 0 1100 i  \*> 200.11.8.0 11.11.11.1 0 0 1100 i  \*> 200.11.9.0 11.11.11.1 0 0 1100 i  \*> 200.11.10.0 11.11.11.1 0 0 1100 i  \*> 200.11.11.0 11.11.11.1 0 0 1100 i  \*> 200.11.12.0 11.11.11.1 0 0 1100 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.11.13.0 11.11.11.1 0 0 1100 i  \*> 200.11.14.0 11.11.11.1 0 0 1100 i  \*> 200.11.15.0 11.11.11.1 0 0 1100 i  \*> 200.21.1.0 11.11.11.2 0 0 2100 i  \*> 200.21.2.0 11.11.11.2 0 0 2100 i  \*> 200.21.3.0 11.11.11.2 0 0 2100 i  \*> 200.21.4.0 11.11.11.2 0 0 2100 i  \*> 200.21.5.0 11.11.11.2 0 0 2100 i  \*> 200.21.6.0 11.11.11.2 0 0 2100 i  \*> 200.21.7.0 11.11.11.2 0 0 2100 i  \*> 200.21.8.0 11.11.11.2 0 0 2100 i  \*> 200.21.9.0 11.11.11.2 0 0 2100 i  \*> 200.21.10.0 11.11.11.2 0 0 2100 i  \*> 200.21.11.0 11.11.11.2 0 0 2100 i  \*> 200.21.12.0 11.11.11.2 0 0 2100 i  \*> 200.21.13.0 11.11.11.2 0 0 2100 i  \*> 200.21.14.0 11.11.11.2 0 0 2100 i  \*> 200.21.15.0 11.11.11.2 0 0 2100 i |

S2\_IX:

|  |
| --- |
| S2\_IX(config-router)#do sh ip bgp  BGP table version is 213, local router ID is 172.16.22.1  Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,  r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,  x best-external, a additional-path, c RIB-compressed,  t secondary path,  Origin codes: i - IGP, e - EGP, ? - incomplete  RPKI validation codes: V valid, I invalid, N Not found  Network Next Hop Metric LocPrf Weight Path  \*> 172.16.12.0/24 22.22.22.1 0 0 1200 i  \*> 172.16.22.0/24 22.22.22.2 0 0 2200 i  \*> 200.12.1.0 22.22.22.1 0 0 1200 i  \*> 200.12.2.0 22.22.22.1 0 0 1200 i  \*> 200.12.3.0 22.22.22.1 0 0 1200 i  \*> 200.12.4.0 22.22.22.1 0 0 1200 i  \*> 200.12.5.0 22.22.22.1 0 0 1200 i  \*> 200.12.6.0 22.22.22.1 0 0 1200 i  \*> 200.12.7.0 22.22.22.1 0 0 1200 i  \*> 200.12.8.0 22.22.22.1 0 0 1200 i  \*> 200.12.9.0 22.22.22.1 0 0 1200 i  \*> 200.12.10.0 22.22.22.1 0 0 1200 i  \*> 200.12.11.0 22.22.22.1 0 0 1200 i  \*> 200.12.12.0 22.22.22.1 0 0 1200 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.12.13.0 22.22.22.1 0 0 1200 i  \*> 200.12.14.0 22.22.22.1 0 0 1200 i  \*> 200.12.15.0 22.22.22.1 0 0 1200 i  \*> 200.22.1.0 22.22.22.2 0 0 2200 i  \*> 200.22.2.0 22.22.22.2 0 0 2200 i  \*> 200.22.3.0 22.22.22.2 0 0 2200 i  \*> 200.22.4.0 22.22.22.2 0 0 2200 i  \*> 200.22.5.0 22.22.22.2 0 0 2200 i  \*> 200.22.6.0 22.22.22.2 0 0 2200 i  \*> 200.22.7.0 22.22.22.2 0 0 2200 i  \*> 200.22.8.0 22.22.22.2 0 0 2200 i  \*> 200.22.9.0 22.22.22.2 0 0 2200 i  \*> 200.22.10.0 22.22.22.2 0 0 2200 i  \*> 200.22.11.0 22.22.22.2 0 0 2200 i  \*> 200.22.12.0 22.22.22.2 0 0 2200 i  \*> 200.22.13.0 22.22.22.2 0 0 2200 i  \*> 200.22.14.0 22.22.22.2 0 0 2200 i  \*> 200.22.15.0 22.22.22.2 0 0 2200 i |

S3\_IX:

|  |
| --- |
| S3\_IX(config-router)#do sh ip bgp  BGP table version is 273, local router ID is 172.16.33.1  Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,  r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,  x best-external, a additional-path, c RIB-compressed,  t secondary path,  Origin codes: i - IGP, e - EGP, ? - incomplete  RPKI validation codes: V valid, I invalid, N Not found  Network Next Hop Metric LocPrf Weight Path  \*> 192.168.13.0 33.33.33.1 0 0 1300 i  \*> 192.168.23.0 33.33.33.2 0 0 2300 i  \*> 200.13.1.0 33.33.33.1 0 0 1300 i  \*> 200.13.2.0 33.33.33.1 0 0 1300 i  \*> 200.13.3.0 33.33.33.1 0 0 1300 i  \*> 200.13.4.0 33.33.33.1 0 0 1300 i  \*> 200.13.5.0 33.33.33.1 0 0 1300 i  \*> 200.13.6.0 33.33.33.1 0 0 1300 i  \*> 200.13.7.0 33.33.33.1 0 0 1300 i  \*> 200.13.8.0 33.33.33.1 0 0 1300 i  \*> 200.13.9.0 33.33.33.1 0 0 1300 i  \*> 200.13.10.0 33.33.33.1 0 0 1300 i  \*> 200.13.11.0 33.33.33.1 0 0 1300 i  \*> 200.13.12.0 33.33.33.1 0 0 1300 i  Network Next Hop Metric LocPrf Weight Path  \*> 200.13.13.0 33.33.33.1 0 0 1300 i  \*> 200.13.14.0 33.33.33.1 0 0 1300 i  \*> 200.13.15.0 33.33.33.1 0 0 1300 i  \*> 200.23.1.0 33.33.33.2 0 0 2300 i  \*> 200.23.2.0 33.33.33.2 0 0 2300 i  \*> 200.23.3.0 33.33.33.2 0 0 2300 i  \*> 200.23.4.0 33.33.33.2 0 0 2300 i  \*> 200.23.5.0 33.33.33.2 0 0 2300 i  \*> 200.23.6.0 33.33.33.2 0 0 2300 i  \*> 200.23.7.0 33.33.33.2 0 0 2300 i  \*> 200.23.8.0 33.33.33.2 0 0 2300 i  \*> 200.23.9.0 33.33.33.2 0 0 2300 i  \*> 200.23.10.0 33.33.33.2 0 0 2300 i  \*> 200.23.11.0 33.33.33.2 0 0 2300 i  \*> 200.23.12.0 33.33.33.2 0 0 2300 i  \*> 200.23.13.0 33.33.33.2 0 0 2300 i  \*> 200.23.14.0 33.33.33.2 0 0 2300 i  \*> 200.23.15.0 33.33.33.2 0 0 2300 i |

* Record the configurations in this task.

I added filter list on every router except CE routers:

|  |
| --- |
| ip prefix-list PRIVATE-NETWORKS seq 5 deny 10.0.0.0/8  ip prefix-list PRIVATE-NETWORKS seq 10 deny 172.16.0.0/12  ip prefix-list PRIVATE-NETWORKS seq 15 deny 192.168.0.0/16  route-map PRIVATE-NETWORKS permit 10  match ip address prefix-list PRIVATE-NETWORKS |

ISP\_A-S1\_PE:

|  |
| --- |
| ISP\_A-S1\_PE(config)#do sh run | s bgp  router bgp 1000  bgp log-neighbor-changes  redistribute connected  neighbor 1.1.1.1 remote-as 1100  neighbor 1.1.1.1 route-map PRIVATE-NETWORKS out  neighbor 10.1.1.254 remote-as 1000  neighbor 10.1.1.254 update-source Loopback0  neighbor 10.1.1.254 next-hop-self  neighbor 10.1.1.254 route-map PRIVATE-NETWORKS out |

ISP\_A-S2\_PE:

|  |
| --- |
| ISP\_A-S2\_PE(config)#do sh run | s bgp  router bgp 1000  bgp log-neighbor-changes  redistribute connected  neighbor 1.1.2.1 remote-as 1200  neighbor 1.1.2.1 route-map PRIVATE-NETWORKS out  neighbor 10.1.1.254 remote-as 1000  neighbor 10.1.1.254 update-source Loopback0  neighbor 10.1.1.254 next-hop-self  neighbor 10.1.1.254 route-map PRIVATE-NETWORKS out |

ISP\_A-S3\_PE:

|  |
| --- |
| ISP\_A-S3\_PE(config)#do sh run | s bgp  router bgp 1000  bgp log-neighbor-changes  redistribute connected  neighbor 1.1.3.1 remote-as 1300  neighbor 1.1.3.1 route-map PRIVATE-NETWORKS out  neighbor 10.1.1.254 remote-as 1000  neighbor 10.1.1.254 update-source Loopback0  neighbor 10.1.1.254 next-hop-self  neighbor 10.1.1.254 route-map PRIVATE-NETWORKS out |

ISP\_B-S1\_PE:

|  |
| --- |
| ISP\_B-S1\_PE(config)#do sh run | s bgp  router bgp 2000  bgp log-neighbor-changes  redistribute connected  neighbor 2.2.1.1 remote-as 2100  neighbor 2.2.1.1 route-map PRIVATE-NETWORKS out  neighbor 10.2.2.254 remote-as 2000  neighbor 10.2.2.254 update-source Loopback0  neighbor 10.2.2.254 next-hop-self  neighbor 10.2.2.254 route-map PRIVATE-NETWORKS out |

ISP\_B-S2\_PE:

|  |
| --- |
| ISP\_B-S2\_PE(config)#do sh run | s bgp  router bgp 2000  bgp log-neighbor-changes  redistribute connected  neighbor 2.2.2.1 remote-as 2200  neighbor 2.2.2.1 route-map PRIVATE-NETWORKS out  neighbor 10.2.2.254 remote-as 2000  neighbor 10.2.2.254 update-source Loopback0  neighbor 10.2.2.254 next-hop-self  neighbor 10.2.2.254 route-map PRIVATE-NETWORKS out |

ISP\_B-S3\_PE:

|  |
| --- |
| ISP\_B-S3\_PE(config)#do sh run | s bgp  router bgp 2000  bgp log-neighbor-changes  redistribute connected  neighbor 2.2.3.1 remote-as 2300  neighbor 2.2.3.1 route-map PRIVATE-NETWORKS out  neighbor 10.2.2.254 remote-as 2000  neighbor 10.2.2.254 update-source Loopback0  neighbor 10.2.2.254 next-hop-self  neighbor 10.2.2.254 route-map PRIVATE-NETWORKS out |

RSP1:

|  |
| --- |
| RSP1(config)#do sh run | s bgp  router bgp 10  bgp log-neighbor-changes  redistribute connected  neighbor 10.10.10.1 remote-as 1000  neighbor 10.10.10.1 route-map PRIVATE-NETWORKS out  neighbor 12.12.12.2 remote-as 20  neighbor 12.12.12.2 route-map PRIVATE-NETWORKS out |

RSP2:

|  |
| --- |
| RSP2(config)#do sh run | s bgp  router bgp 20  bgp log-neighbor-changes  redistribute connected  neighbor 12.12.12.1 remote-as 10  neighbor 12.12.12.1 route-map PRIVATE-NETWORKS out  neighbor 20.20.20.1 remote-as 2000  neighbor 20.20.20.1 route-map PRIVATE-NETWORKS out |

S1\_IX:

|  |
| --- |
| S1\_IX(config)#do sh run | s bgp  router bgp 1111  bgp log-neighbor-changes  neighbor 11.11.11.1 remote-as 1100  neighbor 11.11.11.1 route-map AS\_PATH\_FILTER in  neighbor 11.11.11.1 route-map PRIVATE-NETWORKS out  neighbor 11.11.11.2 remote-as 2100  neighbor 11.11.11.2 route-map AS\_PATH\_FILTER in  neighbor 11.11.11.2 route-map PRIVATE-NETWORKS out |

S2\_IX:

|  |
| --- |
| S2\_IX(config)#do sh run | s bgp  router bgp 2222  bgp log-neighbor-changes  neighbor 22.22.22.1 remote-as 1200  neighbor 22.22.22.1 route-map AS\_PATH\_FILTER in  neighbor 22.22.22.1 route-map PRIVATE-NETWORKS out  neighbor 22.22.22.2 remote-as 2200  neighbor 22.22.22.2 route-map AS\_PATH\_FILTER in  neighbor 22.22.22.2 route-map PRIVATE-NETWORKS out |

S3\_IX:

|  |
| --- |
| S3\_IX(config)#do sh run | s bgp  router bgp 3333  bgp log-neighbor-changes  neighbor 33.33.33.1 remote-as 1300  neighbor 33.33.33.1 route-map AS\_PATH\_FILTER in  neighbor 33.33.33.1 route-map PRIVATE-NETWORKS out  neighbor 33.33.33.2 remote-as 2300  neighbor 33.33.33.2 route-map AS\_PATH\_FILTER in  neighbor 33.33.33.2 route-map PRIVATE-NETWORKS out |