



BGP Lab Tasks

Lab 1 – Task 1:

- Configure iBGP Peering between:

R-26-Edge <-> R25-RR

R-25-RR <-> R27-Edge

- Only use Loopback interfaces to form iBGP sessions.
- RR (Route-Reflector) node could be configured using Templates.
- Disable default BGP IPv4 unicast AF.
- Enable IPv4 and IPv6 address-families for the neighbors.
- Advertise Loopback 5 networks on Edge routers in BGP using Network command.

Lab 2 – Task 1:

- Configure eBGP Peering between R27-Edge <-> R1-Edge (Both IPv4 and IPv6).
- Advertise Loopback 4 interface networks into BGP on R1-Edge.
- Configure iBGP Peering between R1-Edge <-> R3-Edge.
- Advertise Loopback 4 interface networks into BGP on R3-Edge.
- Test R3-Edge loopback 4 connectivity to the R27-Edge Loopback 5.
- Solve the connectivity problem using the Synchronization option enabled on R1-Edge and R3-Edge.

Lab 3 – Task 1:

- Configure AS# 65001 and AS#65002 according to the diagram
- R17-RR and R18-RR must be configured as Route-Reflectors and also their iBGP peers should be configured using Peer-Groups.
- Loopback 0 interface addresses should be used to form any session.
- Every BGP peering must be secured using MD5 password "OrhanErgunLLC".
- Advertise Loopback 3 interface networks into BGP and check the reachability on every Edge router.

Lab 4 – Task 1:

- Configure eBGP session between R3-Edge and R16-Edge
- Manipulate the Weight attribute on R3-Edge and R16-Edge then routes received from e0/0 link should be preferred over s3/0

Lab 4 – Task 2:

- Make sure that R19-Edge router can ping R3-Edge and R1-Edge Loopback 4 using its Loopback 3 interface addresses (both IPv4 and IPv6).

Lab 4 – Task 3:

- Make sure that R19-Edge router can ping R26-Edge Loopback 5 using its Loopback 3 interface addresses (both IPv4 and IPv6).

Lab 5 – Task 1:

- Configure IPv4 iBGP sessions between Edge-Routers using Loopback0 as the update-source
- R21-RR-Edge and XRv20-RR-Edge should be also Route-Reflectors
- You are not allowed to configure BGP on Core nodes, MPLS and LDP is already configured and every Edge router has end-to-end connectivity from Loopback0 to Loopback0 of other Edge routers.
- Advertise Edge routers Loopback 2 IPv4 address in BGP using Network command

Lab 6 – Task 1:

- R4-Edge, R5-Edge, R7-RR and R8-RR should be configured as route-reflector-clients of R6-RR and R31-RR.
- R6-RR and R31-RR should be a part of Cluster 1.1.1.1.
- DO NOT use Peer-Groups or Templates

Lab 6 – Task 2:

- Configure R12-Edge and R13-Edge as being a route-reflector-client of R7-RR and R8-RR.
- R7-RR and R8-RR should be a part of cluster 11.11.11.11.

Lab 6 – Task 3:

- Configure R10-RR and R11-RR as a rr-client of R9-RR.
- R9-RR must use cluster-id 2.2.2.2
- Configure R14-Edge and R15-Edge as an rr-client of R10-RR and R11-RR.
- R10-RR and R11-RR must use cluster-id 22.22.22.22.

Lab 6 – Task 4:

- Advertise Loopback 1 IPv4 and IPv6 addresses into BGP on Edge Routers

Lab 6 – Task 5:

- Configure eBGP Session between R21-RR-Edge and R4-Edge, R5-Edge
- Create Loopback 1 interface on R9-RR with below addresses and advertise them into BGP
- Enable iBGP Multi-Path on R9-RR and see the results
- Check R12-Edge BGP table too see if Route-Reflectors are hiding one path.

Lab 7 – Task 1:

- Configure eBGP Sessions between AS# 50000 and AS# 10000 (Blue Area).
- Autonomous System 50000 should be configured as a non-transit AS (Stub AS).

Lab 7 – Task 2:

- Manipulate Local Preference attribute and make R26-Edge router as the preferred exit point.

Lab 7 – Task 3:

- Manipulate Local Preference attribute on R27-Edge and make force it to use its directly connected neighbors from AS# 10000 in order to reach AS# 10000 originated routes.

Lab 7 – Task 4:

- On R15-Edge set MED attribute to 400.
- R27-Edge should prefer R15-Edge received routes because of lowest MED value.

Lab 7 – Task 5:

- On R26-Edge prepend one more AS# 50000 to the routes when advertising them to R12-Edge and see the results on R12-Edge BGP table.

Lab 7 – Task 6:

- Assigning Secondary IPv4 address 5.67.0.26/24 to the e0/0 interface of R26-Edge.
- Assigning Secondary IPv4 address 5.67.0.27/24 to the e0/0 interface of R27-Edge.
- On R26-Edge use Network command to advertise that network into BGP.
- On R27-Edge redistribute that network into BGP using a route-map.
- Check the Origin Attribute of that route on R25-RR and see which path is preferred.

Lab 8– Task 1:

- Configure all IOS routers in AS 30000 and AS 20000 to send community attribute to their peers.
- Configure eBGP sessions between AS 30000 and AS 20000 (Community attribute must be exchanged between them)
- Check XRv20-RR-Edge BGP table to see if it gets all the routes

Lab 8– Task 2:

- Create Loopback 65001 interface on R16-Edge and assign below IP addresses to it:
 - IPv4: 3.16.255.16/24
 - IPv6: 2001:A3DE:16:255::16/64
- Advertise Loopback65001 networks into BGP but those networks must not exit the AS#65001 (only AS# 65001 routers should get that prefix). You can only use communities on R16-Edge.

Lab 8– Task 3:

- Create Loopback 30000 interface on R16-Edge and assign below IP addresses to it:
 - IPv4: 3.16.133.16/24
 - IPv6: 2001:A3DE:16:133::16/64
- Advertise Loopback 30000 networks into BGP but those networks must not exit the AS#30000 (only AS# 30000 routers should get that prefix). You can only use communities on R16-Edge.

Lab 8– Task 4:

- Create Loopback 50 interface on R28-Edge and assign below IP addresses to it:
 - IPv4: 3.28.50.16/24
 - IPv6: 2001:A3DE:28:50::16/64
- Advertise Loopback 50 networks into BGP.
- By using communities signal AS#20000 to choose R22-Edge as the exit point of Loopback 50 networks.