Introduction:

In this lab, we used Border Gateway Protocol also known as BGP to establish a network connection between areas in order to use BGP as a backbone area to transmit packets between different areas that use different protocols such as OSPF, EIGRP, or RIP. We also used 3 BGP attributes consisting of route aggregation, route-map, and BGP weight.

Background Information:

Border Gateway Protocol (BGP) is an Internet Engineering Task Force (IETF) standard which boasts immense scalability which is why it is the main routing protocol of the global internet used by Internet Service providers (ISPs) and other large corporations. The purpose of BGP is to communicate internet routing information between different autonomous systems in order to find destinations for packets sent across the internet. BGP uses path vector topology which makes routing decisions based on path, network policies, and rules rather than metrics like distance or cost which other protocols like EIGRP or OSFP use.

There are two types of BGP, Interior BGP (IBGP) and Exterior BGP (EBGP). These types of BGP are different due to their application, IBGP is used within an autonomous system (AS) while EBGP, the one more commonly seen, is used to route between different autonomous systems which is used for routing across the internet.

BGP is dependent on trust and manual configuration which leaves it vulnerable as it by default trusts all route announcements. This has resulted in a lack of protection against route hijacking. These concerns are currently being addressed with efforts to enhance the security of BGP via new features like Resource Public

Key Infrastructure (RPKI) which allows for the verification of BGP route announcements to prove authenticity.

Lab Summary:

This BGP lab had us establish 3 areas all using different routing protocols (EIGRP, OSPF, and RIP) and using a backbone area (area 0) which uses BGP to route between each separate area. We also used 3 BGP attributes being route aggregation, route-map and weight.

The route aggregation attribute is used to minimize the routing table size by using BGP Route Summarization. Route-mapping is used to set conditions for route redistribution and enable routing polices. BGP weight is used by assigning a value to prefixes to determine preferred paths.

Using redistribute commands, we are able to share routing information between different areas and protocols. We redistribute into and out of the BGP area from our other areas such as RIP, OSPF, and EIGRP. This allows all areas to communicate with one another and allows routers within the sub-areas like OSPF-1 to include other networks like the RIP network into their routing table.

Lab Commands:

Ipv6 unicast-routing

Ip address 192.168.x.x 255.255.255.0

Ipv6 address 2001:db8:x::x/64

Ipv6 ospf 1 area 0

Router ospf 1

Redistribute bgp 1 subnets

Network 192.168.x.x 255.255.255.0 area 0

Router bgp x

Bgp router-id x.x.x.x

No bgp default-ipv4-unicast

Neighbor 2001:db8:x::x remote-as x

Neighbor 192.168.x.x remote-as x

Network 192.168.x.x

Aggregate-address 192.168.x.x 255.255.255.0 as-confed-set summary-only

Neighbor 192.168.x.x activate

Redistribute connected

Redistribute ospf 1

Network 2001:db8:x::/64

Neighbor 2001:db8:x::x activate

Ipv6 router ospf 1

Redistribute bpg x metric 5

Ripv6 rip RIP enable

Router rip

Neighbor 192.168.x.x weight 40000

Ipv6 router rip rip1

Ipv6 rip rip1 enable

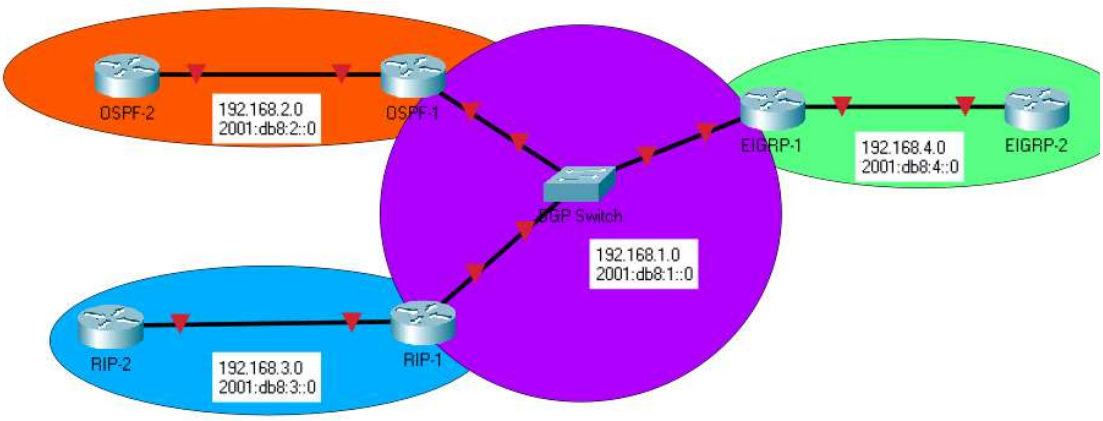
Router eigrp 1

Redistribute bgp x metric 100 1 255 1 1500

Neighbor 192.168.x.x route-map cartermap out

Route-map catermap permit 10

Network Diagram:



Configurations:

OFPF-1:

```
Building configuration..


Current configuration : 2500 bytes


Last configuration change at 17:23:58 UTC Tue Jan 9 2024


version 15.5

service timestamps debug datetime msec

service timestamps log datetime msec

no platform punt-keepalive disable-kernel-core


hostname OSPf-R1


boot-start-marker

boot-end-marker
```

```
vrf definition Mgmt-intf


address-family ipv4

exit-address-family


address-family ipv6

exit-address-family


no aaa new-model

no ip icmp rate-limit unreachable


no ip domain lookup


ipv6 unicast-routing


subscriber templating

multilink bundle-name authenticated
```

```
license udi pid ISR4321/K9 sn FDO214421CF
archive
log config
  hidekeys

spanning-tree extend system-id

redundancy
mode none

vlan internal allocation policy ascending

ip tcp synwait-time 5

interface GigabitEthernet0/0/0
ip address 192.168.1.1 255.255.255.0
negotiation auto
ipv6 address 2001:DB8:1::1/64
```

```
interface GigabitEthernet0/0/1
ip address 192.168.2.1 255.255.255.0
negotiation auto
ipv6 address 2001:DB8:2::1/64
ipv6 ospf 1 area 0
ipv6 ospf network point-to-point

interface Serial0/1/0
no ip address

interface Serial0/1/1
no ip address

interface GigabitEthernet0
vrf forwarding Mgmt-intf
no ip address
```

```
negotiation auto


interface Vlan1

no ip address


router ospf 1

redistribute bgp 1 subnets

network 192.168.2.0 0.0.0.255 area 0


router bgp 1

bgp router-id 1.1.1.1

bgp log-neighbor-changes

no bgp default ipv4-unicast

neighbor 2001:DB8:1::2 remote-as 2

neighbor 2001:DB8:1::2 update-source GigabitEthernet0/0/0

neighbor 2001:DB8:1::3 remote-as 3

neighbor 192.168.1.2 remote-as 2

neighbor 192.168.1.3 remote-as 3
```

```
address-family ipv4

  network 192.168.1.0

  network 192.168.2.0

  aggregate-address 192.168.1.0 255.255.255.0 as-confed-set
summary-only

  neighbor 192.168.1.2 activate

  neighbor 192.168.1.3 activate

exit-address-family



address-family ipv6

  redistribute connected

  redistribute ospf 1

  network 2001:DB8:1::/64

  network 2001:DB8:2::/64

  neighbor 2001:DB8:1::2 activate

  neighbor 2001:DB8:1::3 activate

exit-address-family
```

```
ip forward-protocol nd

no ip http server

no ip http secure-server

ip tftp source-interface GigabitEthernet0

!

!

ipv6 router ospf 1

redistribute connected

redistribute bgp 1 metric 5


control-plane


line con 0

exec-timeout 0 0

privilege level 15

logging synchronous

stopbits 1
```

```
line aux 0

exec-timeout 0 0

privilege level 15

logging synchronous

stopbits 1

line vty 0 4

login



end

Gateway of last resort is not set



      192.168.1.0/24 is variably subnetted, 2 subnets, 2
masks

C        192.168.1.0/24 is directly connected,
GigabitEthernet0/0/0

L        192.168.1.1/32 is directly connected,
GigabitEthernet0/0/0

      192.168.2.0/24 is variably subnetted, 2 subnets, 2
masks

C        192.168.2.0/24 is directly connected,
GigabitEthernet0/0/1
```

```
L        192.168.2.1/32 is directly connected,
GigabitEthernet0/0/1

B     192.168.3.0/24 [20/0] via 192.168.1.2, 00:02:21

B     192.168.4.0/24 [20/0] via 192.168.1.3, 00:02:49

interface Serial0/1/1

C   2001:DB8:1::/64 [0/0]

     via GigabitEthernet0/0/0, directly connected

L   2001:DB8:1::1/128 [0/0]

     via GigabitEthernet0/0/0, receive

C   2001:DB8:2::/64 [0/0]

     via GigabitEthernet0/0/1, directly connected

L   2001:DB8:2::1/128 [0/0]

     via GigabitEthernet0/0/1, receive

B   2001:DB8:3::/64 [20/0]

     via FE80::B6A8:B9FF:FE01:B750, GigabitEthernet0/0/0

B   2001:DB8:4::/64 [20/0]

     via FE80::CE7F:76FF:FE6A:B5E0, GigabitEthernet0/0/0

L   FF00::/8 [0/0]
```

```
     via Null0, receive
```

OSFP-2:

```
Building configuration...


Current configuration : 1654 bytes


 Last configuration change at 17:45:53 UTC Tue Jan 9 2024


version 15.5
service timestamps debug datetime msec
service timestamps log datetime msec
no platform punt-keepalive disable-kernel-core


hostname OSPF-R2


boot-start-marker
```

```
boot-end-marker


vrf definition Mgmt-intf


address-family ipv4

exit-address-family


address-family ipv6

exit-address-family


no aaa new-model

no ip icmp rate-limit unreachable


no ip domain lookup


ipv6 unicast-routing
```

```
subscriber templating
multilink bundle-name authenticated


license udi pid ISR4321/K9 sn FDO211216BL
archive
log config
  hidekeys


spanning-tree extend system-id


redundancy
mode none


vlan internal allocation policy ascending


ip tcp synwait-time 5
```

```
interface GigabitEthernet0/0/0

ip address 192.168.2.2 255.255.255.0

negotiation auto

ipv6 address 2001:DB8:2::2/64

ipv6 ospf 1 area 0

ipv6 ospf network point-to-point


interface GigabitEthernet0/0/1

no ip address

negotiation auto


interface Serial0/1/0

no ip address


interface Serial0/1/1

no ip address
```

```
interface GigabitEthernet0
vrf forwarding Mgmt-intf
no ip address
negotiation auto

interface Vlan1
no ip address

router ospf 1
router-id 1.1.1.1
network 192.168.2.0 0.0.0.255 area 0

ip forward-protocol nd
no ip http server
no ip http secure-server
ip tftp source-interface GigabitEthernet0
```

```
ipv6 router ospf 1


control-plane


line con 0
exec-timeout 0 0
privilege level 15
logging synchronous
stopbits 1
line aux 0
exec-timeout 0 0
privilege level 15
logging synchronous
stopbits 1
line vty 0 4
login


end
```

```
Gateway of last resort is not set



O E2  192.168.1.0/24 [110/1] via 192.168.2.1, 00:07:54,
GigabitEthernet0/0/0

      192.168.2.0/24 is variably subnetted, 2 subnets, 2
masks

C        192.168.2.0/24 is directly connected,
GigabitEthernet0/0/0

L        192.168.2.2/32 is directly connected,
GigabitEthernet0/0/0

O E2  192.168.3.0/24 [110/1] via 192.168.2.1, 00:07:18,
GigabitEthernet0/0/0

O E2  192.168.4.0/24 [110/1] via 192.168.2.1, 00:07:45,
GigabitEthernet0/0/0



OE2 2001:DB8:1::/64 [110/20]

     via FE80::B6A8:B9FF:FE47:8E41, GigabitEthernet0/0/0

C   2001:DB8:2::/64 [0/0]

     via GigabitEthernet0/0/0, directly connected

L   2001:DB8:2::2/128 [0/0]
```

```
     via GigabitEthernet0/0/0, receive
OE2 2001:DB8:3::/64 [110/5]
     via FE80::B6A8:B9FF:FE47:8E41, GigabitEthernet0/0/0
OE2 2001:DB8:4::/64 [110/5]
     via FE80::B6A8:B9FF:FE47:8E41, GigabitEthernet0/0/0
L   FF00::/8 [0/0]
     via Null0, receive
```

RIP-1:

```
Building configuration...



Current configuration : 2410 bytes


Last configuration change at 18:00:03 UTC Tue Jan 9 2024


version 15.5
```

```
service timestamps debug datetime msec

service timestamps log datetime msec

platform punt-keepalive disable-kernel-core


hostname RIP-R1


boot-start-marker

boot-end-marker


vrf definition Mgmt-intf


address-family ipv4

exit-address-family


address-family ipv6

exit-address-family
```

```
no aaa new-model

no ip icmp rate-limit unreachable


no ip domain lookup


login on-success log

ipv6 unicast-routing


subscriber templating

multilink bundle-name authenticated


license udi pid ISR4321/K9 sn FDO214420G7

archive

log config

  hidekeys


spanning-tree extend system-id
```

```
redundancy
mode none

vlan internal allocation policy ascending

ip tcp synwait-time 5

interface GigabitEthernet0/0/0
ip address 192.168.1.2 255.255.255.0
negotiation auto
ipv6 address 2001:DB8:1::2/64

interface GigabitEthernet0/0/1
ip address 192.168.3.1 255.255.255.0
negotiation auto
ipv6 address 2001:DB8:3::1/64
ipv6 rip RIP enable
```

```
interface Serial0/1/0
no ip address
shutdown

interface Serial0/1/1
no ip address
shutdown

interface GigabitEthernet0
vrf forwarding Mgmt-intf
no ip address
shutdown
negotiation auto

interface Vlan1
no ip address
```

```
shutdown


router rip
redistribute connected
redistribute bgp 2 metric 5
network 192.168.3.0
neighbor 192.168.3.2


router bgp 2
bgp router-id 2.2.2.2
bgp log-neighbor-changes
no bgp default ipv4-unicast
neighbor 2001:DB8:1::1 remote-as 1
neighbor 2001:DB8:1::3 remote-as 3
neighbor 192.168.1.1 remote-as 1
neighbor 192.168.1.3 remote-as 3


address-family ipv4
```

```
  network 192.168.3.0
  neighbor 192.168.1.1 activate
  neighbor 192.168.1.1 weight 40000
  neighbor 192.168.1.3 activate
exit-address-family

address-family ipv6
  network 2001:DB8:1::/64
  network 2001:DB8:3::/64
  neighbor 2001:DB8:1::1 activate
  neighbor 2001:DB8:1::3 activate
exit-address-family

ip forward-protocol nd
no ip http server
no ip http secure-server
ip tftp source-interface GigabitEthernet0
```

```
ipv6 router rip RIP
redistribute connected
redistribute bgp 2 metric 5


ipv6 router rip rip1


control-plane


line con 0
exec-timeout 0 0
privilege level 15
logging synchronous
stopbits 1
line aux 0
exec-timeout 0 0
privilege level 15
logging synchronous
stopbits 1
```

```
line vty 0 4

login



end



Gateway of last resort is not set



      192.168.1.0/24 is variably subnetted, 2 subnets, 2
masks

C        192.168.1.0/24 is directly connected,
GigabitEthernet0/0/0

L        192.168.1.2/32 is directly connected,
GigabitEthernet0/0/0

B     192.168.2.0/24 [20/0] via 192.168.1.1, 00:08:53

      192.168.3.0/24 is variably subnetted, 2 subnets, 2
masks

C        192.168.3.0/24 is directly connected,
GigabitEthernet0/0/1

L        192.168.3.1/32 is directly connected,
GigabitEthernet0/0/1

B     192.168.4.0/24 [20/0] via 192.168.1.3, 00:08:50
```

```
C   2001:DB8:1::/64 [0/0]
     via GigabitEthernet0/0/0, directly connected
L   2001:DB8:1::2/128 [0/0]
     via GigabitEthernet0/0/0, receive
B   2001:DB8:2::/64 [20/0]
     via FE80::B6A8:B9FF:FE47:8E40, GigabitEthernet0/0/0
C   2001:DB8:3::/64 [0/0]
     via GigabitEthernet0/0/1, directly connected
L   2001:DB8:3::1/128 [0/0]
     via GigabitEthernet0/0/1, receive
B   2001:DB8:4::/64 [20/0]
     via FE80::CE7F:76FF:FE6A:B5E0, GigabitEthernet0/0/0
L   FF00::/8 [0/0]
     via Null0, receive
```

RIP-2:

```
Building configuration...
```

```
Current configuration : 1788 bytes

Last configuration change at 17:57:18 UTC Tue Jan 9 2024

version 15.5
service timestamps debug datetime msec
service timestamps log datetime msec
platform punt-keepalive disable-kernel-core

hostname RIP-R2

boot-start-marker
boot-end-marker

vrf definition Mgmt-intf

address-family ipv4
```

```
exit-address-family


address-family ipv6
exit-address-family


no aaa new-model
no ip icmp rate-limit unreachable


no ip domain lookup


login on-success log
ipv6 unicast-routing


subscriber templating
multilink bundle-name authenticated


license udi pid ISR4321/K9 sn FDO21442B21
archive
```

```
log config
  hidekeys

spanning-tree extend system-id

redundancy
mode none

vlan internal allocation policy ascending

ip tcp synwait-time 5

interface GigabitEthernet0/0/0
ip address 192.168.3.2 255.255.255.0
negotiation auto
ipv6 address 2001:DB8:3::2/64
ipv6 rip rip1 enable
```

```
interface GigabitEthernet0/0/1
no ip address
shutdown
negotiation auto

interface Serial0/1/0
no ip address

interface Serial0/1/1
no ip address

interface GigabitEthernet0/2/0
no ip address
negotiation auto

interface GigabitEthernet0/2/1
no ip address
```

```
negotiation auto


interface GigabitEthernet0
vrf forwarding Mgmt-intf
no ip address
negotiation auto


interface Vlan1
no ip address


router rip
network 192.168.3.0
neighbor 192.168.3.1


ip forward-protocol nd
no ip http server
no ip http secure-server
```

```
ip tftp source-interface GigabitEthernet0


ipv6 router rip rip1


ipv6 router rip RIP


control-plane


line con 0
exec-timeout 0 0
privilege level 15
logging synchronous
stopbits 1
line aux 0
exec-timeout 0 0
privilege level 15
logging synchronous
```

```
stopbits 1

line vty 0 4

login



end



Gateway of last resort is not set



R     192.168.1.0/24 [120/1] via 192.168.3.1, 00:00:03,
GigabitEthernet0/0/0

R     192.168.2.0/24 [120/5] via 192.168.3.1, 00:00:03,
GigabitEthernet0/0/0

      192.168.3.0/24 is variably subnetted, 2 subnets, 2
masks

C        192.168.3.0/24 is directly connected,
GigabitEthernet0/0/0

L        192.168.3.2/32 is directly connected,
GigabitEthernet0/0/0

R     192.168.4.0/24 [120/5] via 192.168.3.1, 00:00:03,
GigabitEthernet0/0/0
```

```
R   2001:DB8:1::/64 [120/2]
     via FE80::B6A8:B9FF:FE01:B751, GigabitEthernet0/0/0
R   2001:DB8:2::/64 [120/6]
     via FE80::B6A8:B9FF:FE01:B751, GigabitEthernet0/0/0
C   2001:DB8:3::/64 [0/0]
     via GigabitEthernet0/0/0, directly connected
L   2001:DB8:3::2/128 [0/0]
     via GigabitEthernet0/0/0, receive
R   2001:DB8:4::/64 [120/6]
     via FE80::B6A8:B9FF:FE01:B751, GigabitEthernet0/0/0
L   FF00::/8 [0/0]
     via Null0, receive
```

EIGRP-1:

```
Building configuration...


Current configuration : 2291 bytes


Last configuration change at 17:57:52 UTC Tue Jan 9 2024
```

```
version 16.9
service timestamps debug datetime msec
service timestamps log datetime msec
platform qfp utilization monitor load 80
no platform punt-keepalive disable-kernel-core

hostname EIGRP-R1

boot-start-marker
boot-end-marker

vrf definition Mgmt-intf

address-family ipv4
exit-address-family
```

```
address-family ipv6
exit-address-family


no aaa new-model
no ip icmp rate-limit unreachable


no ip domain lookup


login on-success log


subscriber templating
multilink bundle-name authenticated


license udi pid ISR4321/K9 sn FLM24060912
no license smart enable
diagnostic bootup level minimal
```

```
spanning-tree extend system-id

archive

log config

  hidekeys


redundancy

mode none


interface GigabitEthernet0/0/0

ip address 192.168.1.3 255.255.255.0

negotiation auto

ipv6 address 2001:DB8:1::3/64


interface GigabitEthernet0/0/1

ip address 192.168.4.1 255.255.255.0

negotiation auto

ipv6 address 2001:DB8:4::1/64
```

```
interface GigabitEthernet0/2/0
no ip address
negotiation auto

interface GigabitEthernet0/2/1
no ip address
negotiation auto

interface GigabitEthernet0
vrf forwarding Mgmt-intf
no ip address
shutdown
negotiation auto

router eigrp 1
network 192.168.4.0
redistribute bgp 3 metric 100 1 255 1 1500
auto-summary
```

```
router bgp 3
bgp router-id 3.3.3.3
bgp log-neighbor-changes
no bgp default ipv4-unicast
neighbor 2001:DB8:1::1 remote-as 1
neighbor 2001:DB8:1::2 remote-as 2
neighbor 192.168.1.1 remote-as 1
neighbor 192.168.1.1 description IX peer
neighbor 192.168.1.2 remote-as 2


address-family ipv4
  network 192.168.1.0
  network 192.168.4.0
  neighbor 192.168.1.1 activate
  neighbor 192.168.1.1 route-map cartermap out
  neighbor 192.168.1.2 activate
exit-address-family
```

```
address-family ipv6
  redistribute eigrp 1
  network 2001:DB8:1::/64
  network 2001:DB8:4::/64
  neighbor 2001:DB8:1::1 activate
  neighbor 2001:DB8:1::2 activate
exit-address-family

ip forward-protocol nd
ip tcp synwait-time 5
no ip http server
no ip http secure-server
ip tftp source-interface GigabitEthernet0

ipv6 router eigrp 1
eigrp router-id 1.1.1.1
redistribute bgp 3 metric 100 1 255 1 100
```

```
route-map cartermap permit 10
set as-path prepend 3


control-plane


line con 0
exec-timeout 0 0
privilege level 15
logging synchronous
transport input none
stopbits 1
line aux 0
exec-timeout 0 0
privilege level 15
logging synchronous
stopbits 1
line vty 0 4
login
```

```
end


Gateway of last resort is not set


      192.168.1.0/24 is variably subnetted, 2 subnets, 2
masks

C        192.168.1.0/24 is directly connected,
GigabitEthernet0/0/0

L        192.168.1.3/32 is directly connected,
GigabitEthernet0/0/0

B     192.168.2.0/24 [20/0] via 192.168.1.1, 00:12:37

B     192.168.3.0/24 [20/0] via 192.168.1.2, 00:12:11

      192.168.4.0/24 is variably subnetted, 2 subnets, 2
masks

C        192.168.4.0/24 is directly connected,
GigabitEthernet0/0/1

L        192.168.4.1/32 is directly connected,
GigabitEthernet0/0/1



C   2001:DB8:1::/64 [0/0]
```

```
     via GigabitEthernet0/0/0, directly connected
L    2001:DB8:1::3/128 [0/0]
     via GigabitEthernet0/0/0, receive
B    2001:DB8:2::/64 [20/0]
     via FE80::B6A8:B9FF:FE47:8E40, GigabitEthernet0/0/0
B    2001:DB8:3::/64 [20/0]
     via FE80::B6A8:B9FF:FE01:B750, GigabitEthernet0/0/0
C    2001:DB8:4::/64 [0/0]
     via GigabitEthernet0/0/1, directly connected
L    2001:DB8:4::1/128 [0/0]
     via GigabitEthernet0/0/1, receive
L    FF00::/8 [0/0]
```

EIGRP-2:

```
Building configuration...


Current configuration : 1732 bytes
```

```
Last configuration change at 17:46:02 UTC Tue Jan 9 2024

version 16.9
service timestamps debug datetime msec
service timestamps log datetime msec
platform qfp utilization monitor load 80
no platform punt-keepalive disable-kernel-core

hostname EIGRP-R2

boot-start-marker
boot-end-marker

vrf definition Mgmt-intf

address-family ipv4
```

```
exit-address-family


address-family ipv6
exit-address-family


no aaa new-model
no ip icmp rate-limit unreachable


no ip domain lookup


login on-success log


subscriber templating
ipv6 unicast-routing
multilink bundle-name authenticated


license udi pid ISR4321/K9 sn FLM2408005M
```

```
no license smart enable
diagnostic bootup level minimal


spanning-tree extend system-id
archive
log config
  hidekeys


redundancy
mode none


interface GigabitEthernet0/0/0
ip address 192.168.4.2 255.255.255.0
negotiation auto
ipv6 address 2001:DB8:4::2/64
ipv6 enable
ipv6 eigrp 1
```

```
interface GigabitEthernet0/0/1
 no ip address
 shutdown
 negotiation auto

interface GigabitEthernet0/2/0
 no ip address
 negotiation auto

interface GigabitEthernet0/2/1
 no ip address
 negotiation auto

interface GigabitEthernet0
 vrf forwarding Mgmt-intf
 no ip address
```

```
negotiation auto


router eigrp 1
network 192.168.4.0
auto-summary


ip forward-protocol nd
ip tcp synwait-time 5
no ip http server
no ip http secure-server
ip tftp source-interface GigabitEthernet0


ipv6 router eigrp 1


control-plane


line con 0
```

```
exec-timeout 0 0

privilege level 15

logging synchronous

transport input none

stopbits 1

line aux 0

exec-timeout 0 0

privilege level 15

logging synchronous

stopbits 1

line vty 0 4

login



end



D EX  192.168.1.0/24

           [170/25600512] via 192.168.4.1, 00:13:48,
GigabitEthernet0/0/0
```

```
D EX  192.168.2.0/24

           [170/25600512] via 192.168.4.1, 00:13:32,
GigabitEthernet0/0/0

D EX  192.168.3.0/24

           [170/25600512] via 192.168.4.1, 00:13:05,
GigabitEthernet0/0/0

      192.168.4.0/24 is variably subnetted, 2 subnets, 2
masks

C        192.168.4.0/24 is directly connected,
GigabitEthernet0/0/0

L        192.168.4.2/32 is directly connected,
GigabitEthernet0/0/0



EX  2001:DB8:1::/64[170/640000256]

     via FE80::5C1C:B0FF:FE2D:6800, GigabitEthernet0/0/0

EX  2001:DB8:2::/64[170/640000256]

     via FE80::5C1C:B0FF:FE2D:6800, GigabitEthernet0/0/0

EX  2001:DB8:3::/64[170/640000256]

     via FE80::5C1C:B0FF:FE2D:6800, GigabitEthernet0/0/0

C   2001:DB8:4::/64 [0/0]

     via GigabitEthernet0/0/0, directly connected
```

```
L   2001:DB8:4::2/128 [0/0]
     via GigabitEthernet0/0/0, receive
L   FF00::/8 [0/0]
     via Null0, receive
```

Issues:

Since this is our first time working with BGP we didn't possess any understanding on how to propagate BGP routing information into other networks of different protocols. We faced issues connecting our EIGRP-2 router to the rest of our network; however, this was found to be due to missing commands, specifically networking and neighbor commands under BGP address-family.

Conclusion:

This BGP lab provides our first insight into the use of BGP and how it works as a backbone between different ASs and networks of different protocol types. This will be useful in future applications due to the wide use of BGP as the backbone of the global internet and a previous hands-on experience of the protocol will prove useful as a foundation to understand networking in a more in-depth level.