A circuit board

Description automatically generated

IPv6 Connections Lab

OSPF – BGP – EIGRP with ipv6

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***Purpose***

In our last lab, we worked on connecting three different protocols in IPv4. This lab is identical to the last, just with IPv6 connections instead. BGP predates IPv6, so unlike protocols such as OSPF which came after, there is no “v3” version tailored to routing IPv6 packets. Instead, BGP was modified to include these new protocols, and so was EIGRP.

***Background***

I spoke about BGP and its importance in the last lab, so this time I will talk about IPv6 and why it is important. IP stands for Internet Protocol, and an IP address is an identifying number for a specific computer. The difference lies in the length of the addresses. IPv4 addresses are 32 bits, while IPv6 addresses are 128 bits, which means that they can support 2128 addresses. An IPv4 address looks something like “192.168.10.10”, short and sweet. IPv6 on the other hand can have addresses like “2001:0db8:85a3:0000:0000:8a2e:0370:7334”, which provides much more room for customization.

The reason IPv6 was created was because as the internet expanded, we were running out of usable addresses for computers. With 32 bits for IPv4 addresses, and multiple devices per person, we do not have enough addresses for everyone, not to mention that there are more people alive than IPv4 addresses to being with. Now, with IPv6 addresses, we have 436259444770433927517146932607359788 times as many IPv6 addresses as people on the planet. We are probably not going to run out anytime soon, which means we must figure out how to route them. With all these new IP addresses, the core of this lab was to configure three routing protocols to “talk” to each other this way. Since IPv6 is commonly used, this is most likely going to apply in real world scenarios.

***Lab Summary***

Since I had my topology from the last lab with unused IPv6 addresses, I just copied those over onto the new topology. After I had created addresses on every

interface, I configured OSPFv3 and IPv6 EIGRP to ping within their own areas. After that, I connected the two BGP routers, and verified that they could ping as well. Now came the hardest part: redistribution, and verification.

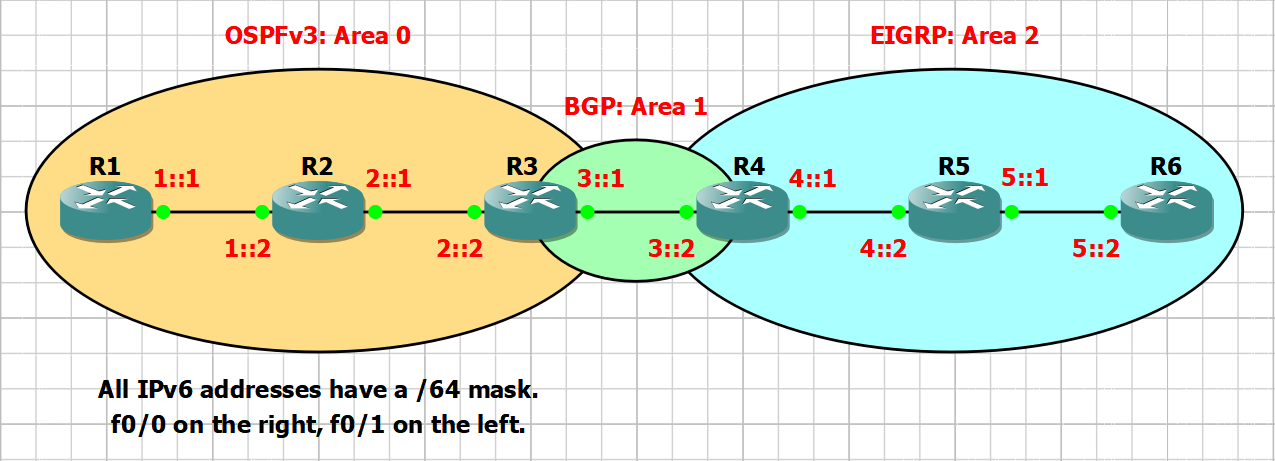
I began by adding IPv6 router IDs and unicast routing onto all routers and redistributing what I could find on Cisco websites. I then configured the address families to redistribute in BGP with the different protocols. Then, after some tinkering and realizing I was in the wrong configuration area, and attending some Teams meetings, I was able to connect everything and ping as normal; it just took some realization of dumb mistakes, which I will mention later. In all honesty, this lab is simple, only the resources for it are hard to find.

***Lab Commands***

This lab mostly used IPv6 commands, as the redistribution was the same. All new commands used, along with their applications, are in the table below.

|  |  |
| --- | --- |
| Command | Meaning |
| ipv6 ospf **[*process-id*]** area **[*area-id*]** | Enable OSPFv3 on an interface |
| ipv6 eigrp **[*process-id*]** | Enables IPv6 EIGRP on an interface |
| address-family ipv6 | Configure IPv6 options for BGP or EIGRP IPv6 addresses |
| neighbor **[*ipv6-address*]** activate | Activates a BGP neighbor for routes |
| redistribute bgp **[*process-id*]** 100 metric 100 metric-type 1 | Redistributes IPv6 BGP into OSPFv3 |
| redistribute ospf **[*process-id*]** match internal external 1 external 2 | Redistributes OSPFv3 into IPv6 BGP |
| redistribute eigrp **[*process-id*]** | Redistributes IPv6 EIGRP into BGP |
| neighbor **[*ipv6-address*]** remote-as **[*process-id*]** | Sets an IPv6 BGP neighbor, same as IPv4 configurations. |
| eigrp router-id **[*router-id*]** | Sets a router ID for EIGRP |
| no bgp default ipv4-unicast | Route in IPv6 for BGP |

***Network Topology***



***Configurations***

R1#ping ipv6 5::2

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 5::2, timeout is 2 seconds:

!!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 176/229/304 ms

R6#ping ipv6 1::1

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 1::1, timeout is 2 seconds:

!!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 160/212/236 ms

R1#show run

Building configuration...

Current configuration : 922 bytes

version 15.2

service timestamps debug datetime msec

service timestamps log datetime msec

hostname R1

boot-start-marker

boot-end-marker

no aaa new-model

no ip icmp rate-limit unreachable

ip cef

no ip domain lookup

ipv6 unicast-routing

ipv6 cef

multilink bundle-name authenticated

ip tcp synwait-time 5

interface FastEthernet0/0

no ip address

speed auto

duplex auto

ipv6 address FE80::1 link-local

ipv6 address 1::1/64

ipv6 ospf 1 area 0

interface FastEthernet0/1

no ip address

shutdown

speed auto

duplex auto

ip forward-protocol nd

no ip http server

no ip http secure-server

ipv6 router ospf 1

router-id 1.1.1.1

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

R1#show ipv6 route

IPv6 Routing Table - default - 6 entries

Codes: C - Connected, L - Local, S - Static, U - Per-user Static route

B - BGP, R - RIP, H - NHRP, I1 - ISIS L1

I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary, D - EIGRP

EX - EIGRP external, ND - ND Default, NDp - ND Prefix, DCE - Destination

NDr - Redirect, O - OSPF Intra, OI - OSPF Inter, OE1 - OSPF ext 1

OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2, l - LISP

C 1::/64 [0/0]

via FastEthernet0/0, directly connected

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

via FastEthernet0/0, receive

O 2::/64 [110/2]

via FE80::C802:35FF:FEFC:6, FastEthernet0/0

OE1 3::2/128 [110/102]

via FE80::C802:35FF:FEFC:6, FastEthernet0/0

OE1 5::/64 [110/102]

via FE80::C802:35FF:FEFC:6, FastEthernet0/0

L FF00::/8 [0/0]

via Null0, receive

R1#show ipv6 ospf database

OSPFv3 Router with ID (1.1.1.1) (Process ID 1)

Router Link States (Area 0)

ADV Router Age Seq# Fragment ID Link count Bits

1.1.1.1 520 0x80000002 0 1 None

2.2.2.2 521 0x80000002 0 2 None

3.3.3.3 521 0x80000002 0 1 E

Net Link States (Area 0)

ADV Router Age Seq# Link ID Rtr count

2.2.2.2 521 0x80000001 3 2

3.3.3.3 521 0x80000001 3 2

Link (Type-8) Link States (Area 0)

ADV Router Age Seq# Link ID Interface

1.1.1.1 555 0x80000002 2 Fa0/0

2.2.2.2 556 0x80000002 3 Fa0/0

Intra Area Prefix Link States (Area 0)

ADV Router Age Seq# Link ID Ref-lstype Ref-LSID

2.2.2.2 521 0x80000001 3072 0x2002 3

3.3.3.3 521 0x80000001 3072 0x2002 3

Type-5 AS External Link States

ADV Router Age Seq# Prefix

3.3.3.3 490 0x80000001 3::2/128

3.3.3.3 490 0x80000001 5::/64

R2#show run

Building configuration...

Current configuration : 954 bytes

version 15.2

service timestamps debug datetime msec

service timestamps log datetime msec

hostname R2

boot-start-marker

boot-end-marker

no aaa new-model

no ip icmp rate-limit unreachable

ip cef

no ip domain lookup

ipv6 unicast-routing

ipv6 cef

multilink bundle-name authenticated

ip tcp synwait-time 5

interface FastEthernet0/0

no ip address

speed auto

duplex auto

ipv6 address FE80::1 link-local

ipv6 address 2::1/64

ipv6 ospf 1 area 0

interface FastEthernet0/1

no ip address

speed auto

duplex auto

ipv6 address 1::2/64

ipv6 ospf 1 area 0

ip forward-protocol nd

no ip http server

no ip http secure-server

ipv6 router ospf 1

router-id 2.2.2.2

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

R2#show ipv6 route

IPv6 Routing Table - default - 7 entries

Codes: C - Connected, L - Local, S - Static, U - Per-user Static route

B - BGP, R - RIP, H - NHRP, I1 - ISIS L1

I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary, D - EIGRP

EX - EIGRP external, ND - ND Default, NDp - ND Prefix, DCE - Destination

NDr - Redirect, O - OSPF Intra, OI - OSPF Inter, OE1 - OSPF ext 1

OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2, l - LISP

C 1::/64 [0/0]

via FastEthernet0/1, directly connected

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

via FastEthernet0/1, receive

C 2::/64 [0/0]

via FastEthernet0/0, directly connected

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

via FastEthernet0/0, receive

OE1 3::2/128 [110/101]

via FE80::C803:3EFF:FEC4:6, FastEthernet0/0

OE1 5::/64 [110/101]

via FE80::C803:3EFF:FEC4:6, FastEthernet0/0

L FF00::/8 [0/0]

via Null0, receive

R2#show ipv6 ospf database

OSPFv3 Router with ID (2.2.2.2) (Process ID 1)

Router Link States (Area 0)

ADV Router Age Seq# Fragment ID Link count Bits

1.1.1.1 716 0x80000002 0 1 None

2.2.2.2 716 0x80000002 0 2 None

3.3.3.3 716 0x80000002 0 1 E

Net Link States (Area 0)

ADV Router Age Seq# Link ID Rtr count

2.2.2.2 716 0x80000001 3 2

3.3.3.3 716 0x80000001 3 2

Link (Type-8) Link States (Area 0)

ADV Router Age Seq# Link ID Interface

1.1.1.1 752 0x80000002 2 Fa0/1

2.2.2.2 751 0x80000002 3 Fa0/1

2.2.2.2 751 0x80000002 2 Fa0/0

3.3.3.3 752 0x80000002 3 Fa0/0

Intra Area Prefix Link States (Area 0)

ADV Router Age Seq# Link ID Ref-lstype Ref-LSID

2.2.2.2 716 0x80000001 3072 0x2002 3

3.3.3.3 716 0x80000001 3072 0x2002 3

Type-5 AS External Link States

ADV Router Age Seq# Prefix

3.3.3.3 685 0x80000001 3::2/128

3.3.3.3 685 0x80000001 5::/64

R3#show run

Building configuration...

Current configuration : 1445 bytes

version 15.2

service timestamps debug datetime msec

service timestamps log datetime msec

hostname R3

boot-start-marker

boot-end-marker

no aaa new-model

no ip icmp rate-limit unreachable

ip cef

no ip domain lookup

ipv6 unicast-routing

ipv6 cef

multilink bundle-name authenticated

ip tcp synwait-time 5

interface FastEthernet0/0

no ip address

speed auto

duplex auto

ipv6 address FE80::1 link-local

ipv6 address 3::1/64

interface FastEthernet0/1

no ip address

speed auto

duplex auto

ipv6 address 2::2/64

ipv6 ospf 1 area 0

router ospf 1

redistribute static subnets

redistribute bgp 100 metric 100 metric-type 1 subnets

router bgp 100

bgp router-id 3.3.3.3

bgp log-neighbor-changes

no bgp default ipv4-unicast

neighbor 3::2 remote-as 200

address-family ipv4

exit-address-family

address-family ipv6

redistribute connected

redistribute ospf 1 match internal external 1 external 2

redistribute static

network 3::1/128

neighbor 3::2 activate

exit-address-family

ip forward-protocol nd

no ip http server

no ip http secure-server

ipv6 router ospf 1

router-id 3.3.3.3

redistribute bgp 100 metric 100 metric-type 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

R3#show ipv6 route

IPv6 Routing Table - default - 8 entries

Codes: C - Connected, L - Local, S - Static, U - Per-user Static route

B - BGP, R - RIP, H - NHRP, I1 - ISIS L1

I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary, D - EIGRP

EX - EIGRP external, ND - ND Default, NDp - ND Prefix, DCE - Destination

NDr - Redirect, O - OSPF Intra, OI - OSPF Inter, OE1 - OSPF ext 1

OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2, l - LISP

O 1::/64 [110/2]

via FE80::1, FastEthernet0/1

C 2::/64 [0/0]

via FastEthernet0/1, directly connected

L 2::2/128 [0/0]

via FastEthernet0/1, receive

C 3::/64 [0/0]

via FastEthernet0/0, directly connected

L 3::1/128 [0/0]

via FastEthernet0/0, receive

B 3::2/128 [20/0]

via FE80::C804:35FF:FEA4:6, FastEthernet0/0

B 5::/64 [20/30720]

via FE80::C804:35FF:FEA4:6, FastEthernet0/0

L FF00::/8 [0/0]

via Null0, receive

R3#show ipv6 ospf database

OSPFv3 Router with ID (3.3.3.3) (Process ID 1)

Router Link States (Area 0)

ADV Router Age Seq# Fragment ID Link count Bits

1.1.1.1 863 0x80000002 0 1 None

2.2.2.2 863 0x80000002 0 2 None

3.3.3.3 862 0x80000002 0 1 E

Net Link States (Area 0)

ADV Router Age Seq# Link ID Rtr count

2.2.2.2 863 0x80000001 3 2

3.3.3.3 862 0x80000001 3 2

Link (Type-8) Link States (Area 0)

ADV Router Age Seq# Link ID Interface

2.2.2.2 898 0x80000002 2 Fa0/1

3.3.3.3 897 0x80000002 3 Fa0/1

Intra Area Prefix Link States (Area 0)

R3#show bgp ipv6 unicast

BGP table version is 7, local router ID is 3.3.3.3

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,

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::/64 FE80::1 2 32768 ?

\*> 2::/64 :: 0 32768 ?

\*> 3::/64 :: 0 32768 ?

\*> 3::1/128 :: 0 32768 i

\*> 3::2/128 3::2 0 0 200 i

\*> 5::/64 3::2 30720 0 200 ?

R4#show run

Building configuration...

Current configuration : 1281 bytes

version 15.2

service timestamps debug datetime msec

service timestamps log datetime msec

hostname R4

boot-start-marker

boot-end-marker

no aaa new-model

no ip icmp rate-limit unreachable

ip cef

no ip domain lookup

ipv6 unicast-routing

ipv6 cef

multilink bundle-name authenticated

ip tcp synwait-time 5

interface FastEthernet0/0

no ip address

speed auto

duplex auto

ipv6 address FE80::1 link-local

ipv6 address 4::1/64

ipv6 eigrp 1

interface FastEthernet0/1

no ip address

speed auto

duplex auto

ipv6 address 3::2/64

router eigrp 1

router bgp 200

bgp router-id 4.4.4.4

bgp log-neighbor-changes

no bgp default ipv4-unicast

neighbor 3::1 remote-as 100

address-family ipv4

exit-address-family

address-family ipv6

redistribute eigrp 1

network 3::2/128

neighbor 3::1 activate

exit-address-family

ip forward-protocol nd

no ip http server

no ip http secure-server

ipv6 router eigrp 1

eigrp router-id 4.4.4.4

redistribute bgp 200 metric 100 1 255 1 1500

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

R4#show ipv6 route

IPv6 Routing Table - default - 9 entries

Codes: C - Connected, L - Local, S - Static, U - Per-user Static route

B - BGP, R - RIP, H - NHRP, I1 - ISIS L1

I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary, D - EIGRP

EX - EIGRP external, ND - ND Default, NDp - ND Prefix, DCE - Destination

NDr - Redirect, O - OSPF Intra, OI - OSPF Inter, OE1 - OSPF ext 1

OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2, l - LISP

B 1::/64 [20/2]

via FE80::1, FastEthernet0/1

B 2::/64 [20/0]

via FE80::1, FastEthernet0/1

C 3::/64 [0/0]

via FastEthernet0/1, directly connected

B 3::1/128 [20/0]

via FE80::1, FastEthernet0/1

L 3::2/128 [0/0]

via FastEthernet0/1, receive

C 4::/64 [0/0]

via FastEthernet0/0, directly connected

L 4::1/128 [0/0]

via FastEthernet0/0, receive

D 5::/64 [90/30720]

via FE80::C805:18FF:FE44:6, FastEthernet0/0

L FF00::/8 [0/0]

via Null0, receive

R4#show ipv6 eigrp 1 topology

EIGRP-IPv6 Topology Table for AS(1)/ID(4.4.4.4)

Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,

r - reply Status, s - sia Status

P 1::/64, 1 successors, FD is 25600256

via Redistributed (25600256/0)

P 5::/64, 1 successors, FD is 30720

via FE80::C805:18FF:FE44:6 (30720/28160), FastEthernet0/0

P 2::/64, 1 successors, FD is 25600256

via Redistributed (25600256/0)

P 3::1/128, 1 successors, FD is 25600256

via Redistributed (25600256/0)

P 4::/64, 1 successors, FD is 28160

via Connected, FastEthernet0/0

R4#show bgp ipv6 unicast

BGP table version is 7, local router ID is 4.4.4.4

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,

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::/64 3::1 2 0 100 ?

\*> 2::/64 3::1 0 0 100 ?

r> 3::/64 3::1 0 0 100 ?

\*> 3::1/128 3::1 0 0 100 i

\*> 3::2/128 :: 0 32768 i

\*> 5::/64 FE80::C805:18FF:FE44:6

30720 32768 ?

R5#show run

Building configuration...

Current configuration : 949 bytes

version 15.2

service timestamps debug datetime msec

service timestamps log datetime msec

hostname R5

boot-start-marker

boot-end-marker

no aaa new-model

no ip icmp rate-limit unreachable

ip cef

no ip domain lookup

ipv6 unicast-routing

ipv6 cef

multilink bundle-name authenticated

ip tcp synwait-time 5

interface FastEthernet0/0

no ip address

speed auto

duplex auto

ipv6 address FE80::1 link-local

ipv6 address 5::1/64

ipv6 eigrp 1

interface FastEthernet0/1

no ip address

speed auto

duplex auto

ipv6 address 4::2/64

ipv6 eigrp 1

ip forward-protocol nd

no ip http server

no ip http secure-server

ipv6 router eigrp 1

eigrp router-id 5.5.5.5

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

R5#show ipv6 route

IPv6 Routing Table - default - 8 entries

Codes: C - Connected, L - Local, S - Static, U - Per-user Static route

B - BGP, R - RIP, H - NHRP, I1 - ISIS L1

I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary, D - EIGRP

EX - EIGRP external, ND - ND Default, NDp - ND Prefix, DCE - Destination

NDr - Redirect, O - OSPF Intra, OI - OSPF Inter, OE1 - OSPF ext 1

OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2, l - LISP

EX 1::/64 [170/25602816]

via FE80::1, FastEthernet0/1

EX 2::/64 [170/25602816]

via FE80::1, FastEthernet0/1

EX 3::1/128 [170/25602816]

via FE80::1, FastEthernet0/1

C 4::/64 [0/0]

via FastEthernet0/1, directly connected

L 4::2/128 [0/0]

via FastEthernet0/1, receive

C 5::/64 [0/0]

via FastEthernet0/0, directly connected

L 5::1/128 [0/0]

via FastEthernet0/0, receive

L FF00::/8 [0/0]

via Null0, receive

R5#show ipv6 eigrp topology

EIGRP-IPv6 Topology Table for AS(1)/ID(5.5.5.5)

Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,

r - reply Status, s - sia Status

P 1::/64, 1 successors, FD is 25602816

via FE80::1 (25602816/25600256), FastEthernet0/1

P 5::/64, 1 successors, FD is 28160

via Connected, FastEthernet0/0

P 2::/64, 1 successors, FD is 25602816

via FE80::1 (25602816/25600256), FastEthernet0/1

P 3::1/128, 1 successors, FD is 25602816

via FE80::1 (25602816/25600256), FastEthernet0/1

P 4::/64, 1 successors, FD is 28160

via Connected, FastEthernet0/1

R6#show run

Building configuration...

Current configuration : 890 bytes

version 15.2

service timestamps debug datetime msec

service timestamps log datetime msec

hostname R6

boot-start-marker

boot-end-marker

no aaa new-model

no ip icmp rate-limit unreachable

ip cef

no ip domain lookup

ipv6 unicast-routing

ipv6 cef

multilink bundle-name authenticated

ip tcp synwait-time

interface FastEthernet0/0

no ip address

shutdown

speed auto

duplex auto

interface FastEthernet0/1

no ip address

speed auto

duplex auto

ipv6 address 5::2/64

ipv6 eigrp 1

ip forward-protocol nd

no ip http server

no ip http secure-server

ipv6 router eigrp 1

eigrp router-id 6.6.6.6

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

R6#show ipv6 route

IPv6 Routing Table - default - 7 entries

Codes: C - Connected, L - Local, S - Static, U - Per-user Static route

B - BGP, R - RIP, H - NHRP, I1 - ISIS L1

I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary, D - EIGRP

EX - EIGRP external, ND - ND Default, NDp - ND Prefix, DCE - Destination

NDr - Redirect, O - OSPF Intra, OI - OSPF Inter, OE1 - OSPF ext 1

OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2, l - LISP

EX 1::/64 [170/25605376]

via FE80::1, FastEthernet0/1

EX 2::/64 [170/25605376]

via FE80::1, FastEthernet0/1

EX 3::1/128 [170/25605376]

via FE80::1, FastEthernet0/1

D 4::/64 [90/30720]

via FE80::1, FastEthernet0/1

C 5::/64 [0/0]

via FastEthernet0/1, directly connected

L 5::2/128 [0/0]

via FastEthernet0/1, receive

L FF00::/8 [0/0]

via Null0, receive

R6#show ipv6 eigrp topology

EIGRP-IPv6 Topology Table for AS(1)/ID(6.6.6.6)

Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,

r - reply Status, s - sia Status

P 1::/64, 1 successors, FD is 25605376

via FE80::1 (25605376/25602816), FastEthernet0/1

P 5::/64, 1 successors, FD is 28160

via Connected, FastEthernet0/1

P 2::/64, 1 successors, FD is 25605376

via FE80::1 (25605376/25602816), FastEthernet0/1

P 3::1/128, 1 successors, FD is 25605376

via FE80::1 (25605376/25602816), FastEthernet0/1

P 4::/64, 1 successors, FD is 30720

via FE80::1 (30720/28160), FastEthernet0/1

***Problems***

The biggest issue was that in the beginning, the “router eigrp” command was not supported by the router image I used. Thankfully, I was able to export the configs of the routers I had setup, and after installing new images, I imported the images and continued. This saved me a lot of time, as re-configuring three routers is not fun in the slightest.

Most of the real issues of this lab came from the research being a bit difficult to find, like the last lab. Obscure answers in forum posts and other things like that. The other issues came, as usual, from missing small details, or creating unnecessary work for myself. At the beginning, I thought this lab’s purpose was to route in IPv4 and IPv6 but turns out the IPv4 configurations were unnecessary. Other than that, I got stuck on which redistributions to use between BGP and the other areas, but this lab went smoothly overall.

***Conclusion***

In summary, IPv6 allows for greater amounts of addresses to be used, and since it is so widely used, it is a good idea for us to know how to set it up. Last time, we were going to do this lab as a part of IPv4, but since packet tracer does not support it like GNS3 does, we were unable to. Apart from hard-to-find research, wrong images, difficult setup, and my laptop burning my thighs, this lab was not that difficult in terms of the actual configuration itself. The difficulty came from looking for *how* to create said configuration.