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1. Verification of the issue

- Routing failure caused by EIGRP misconfiguration

```
R2#show ip eigrp neighbors
EIGRP-IPv4 VR(HQ) Address-Family Neighbors for AS(1)
H   Address                  Interface          Hold Uptime   SRTT   RTO  Q  Seq
                                                (sec)         (ms)        Cnt Num
0   10.1.1.1                 Gi0/0/0            14 00:07:23 1271   5000  0  7
R2#show ipv6 eigrp neighbors
R2#
```

```
R3#show ipv6 eigrp neighbors
R3#show ip eigrp neighbors
EIGRP-IPv4 VR(HQ) Address-Family Neighbors for AS(1)
H   Address                  Interface          Hold Uptime   SRTT   RTO  Q  Seq
                                                (sec)         (ms)        Cnt Num
0   10.1.2.13                Gi0/0/1            11 00:10:11 1598   5000  0  33
R3#
```

- No ipv6 eigrp neighbors on both r2 or r3

```
R2#show ipv6 route eigrp
IPv6 Routing Table - default - 10 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, RL - RPL, O - OSPF Intra, OI - OSPF Inter
       OE1 - OSPF ext 1, OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1
       ON2 - OSPF NSSA ext 2, la - LISP alt, lr - LISP site-registrations
       ld - LISP dyn-eid, lA - LISP away, le - LISP extranet-policy
       lp - LISP publications, a - Application, m - OMP
R2#
```

```
R1#show ipv6 route eigrp
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, RL - RPL, O - OSPF Intra, OI - OSPF Inter
       OE1 - OSPF ext 1, OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1
       ON2 - OSPF NSSA ext 2, la - LISP alt, lr - LISP site-registrations
       ld - LISP dyn-eid, lA - LISP away, le - LISP extranet-policy
       lp - LISP publications, a - Application, m - OMP
R1#
```
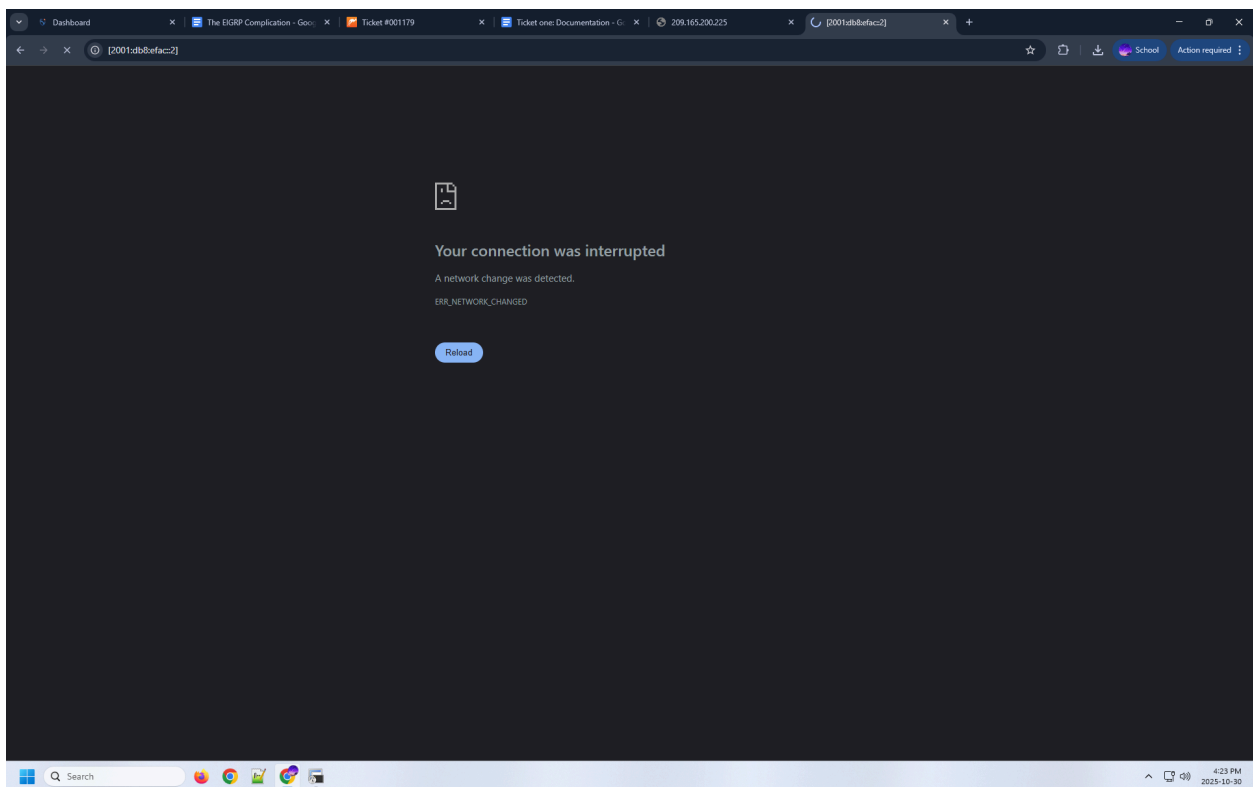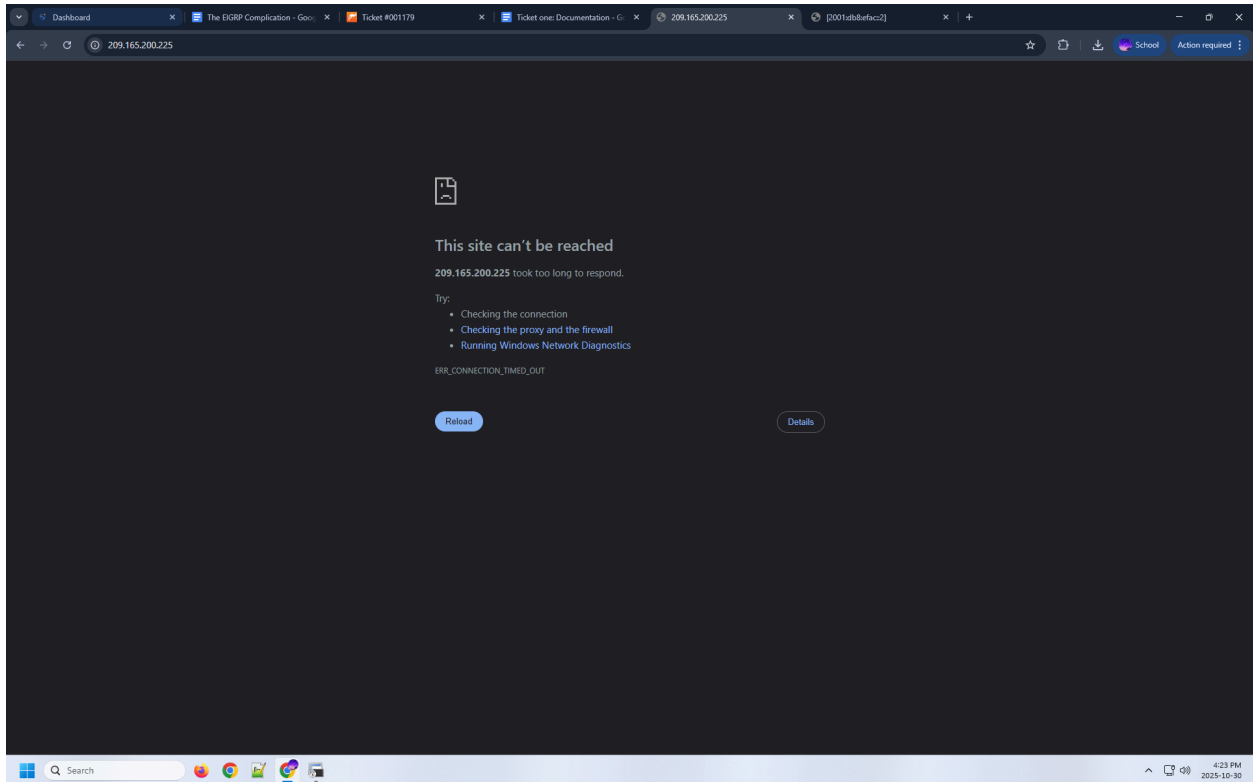
→ no IPV6 routes are being eigrp-learned on both R1 AND R2

2. Troubleshooting method used

- We used bottom-up method
- We will start with verifying that the routers are physically connected
- Verifying ip addresses and connectivity (R1→R2 AND R2→R3)

3. Steps taken to find the issue(s)

1. Checked ip int bri, there is no ip address assigned to R1 g0 interface

```
R1#show ip int bri
Any interface listed with OK? value "NO" does not have a valid configuration

Interface              IP-Address    OK? Method Status                Protocol
GigabitEthernet0/0/0   10.1.1.1      YES TFTP   up                    up
GigabitEthernet0/0/1   10.1.2.2      YES TFTP   up                    up
GigabitEthernet0/0/2   unassigned    YES unset  administratively down down
Serial0/1/0            unassigned    NO  unset  up                    down
Serial0/1/1            unassigned    NO  unset  up                    down
GigabitEthernet0       unassigned    YES DHCP   administratively down down
Loopback0              10.1.201.1    YES TFTP   up                    up
R1#
```

```
R1#show ip route eigrp
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, m - OMP
       n - NAT, Ni - NAT inside, No - NAT outside, Nd - NAT DIA
       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
       H - NHRP, G - NHRP registered, g - NHRP registration summary
       o - ODR, P - periodic downloaded static route, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

      10.0.0.0/8 is variably subnetted, 13 subnets, 3 masks
D        10.1.1.4/30 [90/25600] via 10.1.2.1, 00:11:24, GigabitEthernet0/0/1
D        10.1.2.12/30 [90/20480] via 10.1.2.1, 00:12:01, GigabitEthernet0/0/1
D        10.1.99.0/24 [90/15360] via 10.1.2.1, 00:12:05, GigabitEthernet0/0/1
D        10.1.100.0/24 [90/15360] via 10.1.2.1, 00:12:07, GigabitEthernet0/0/1
D        10.1.110.0/24 [90/15360] via 10.1.2.1, 00:12:05, GigabitEthernet0/0/1
D        10.1.120.0/24 [90/15360] via 10.1.2.1, 00:12:05, GigabitEthernet0/0/1
D        10.1.200.0/24 [90/15360] via 10.1.2.1, 00:12:05, GigabitEthernet0/0/1
D        10.1.203.1/32 [90/21120] via 10.1.2.1, 00:11:24, GigabitEthernet0/0/1
R1#
```

```
R2#show ip route eigrp
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, m - OMP
       n - NAT, Ni - NAT inside, No - NAT outside, Nd - NAT DIA
       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
       H - NHRP, G - NHRP registered, g - NHRP registration summary
       o - ODR, P - periodic downloaded static route, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is 0.0.0.0 to network 0.0.0.0

      10.0.0.0/8 is variably subnetted, 12 subnets, 3 masks
D        10.1.2.12/30 [90/25600] via 10.1.1.1, 00:13:23, GigabitEthernet0/0/0
D        10.1.99.0/24 [90/20480] via 10.1.1.1, 00:13:23, GigabitEthernet0/0/0
D        10.1.100.0/24 [90/20480] via 10.1.1.1, 00:13:23, GigabitEthernet0/0/0
D        10.1.110.0/24 [90/20480] via 10.1.1.1, 00:13:23, GigabitEthernet0/0/0
D        10.1.120.0/24 [90/20480] via 10.1.1.1, 00:13:23, GigabitEthernet0/0/0
D        10.1.200.0/24 [90/20480] via 10.1.1.1, 00:13:23, GigabitEthernet0/0/0
D        10.1.203.1/32 [90/26240] via 10.1.1.1, 00:12:56, GigabitEthernet0/0/0
R2#
```

- R1 and R2 has eigrp-learned routes

4. Description of the issue

- R1 and r2 were not forming EIGRP adjacency which causes no routes to be exchanged between routers
- "Show ip route eigrp" shows no entries
- Missing or misconfigured eigrp on r2 which makes r1 unable to reach external networks

5. Commands entered to fix the issue

1. Commands entered:
- int g0
- ip address 10.41.30.116 255.255.255.0
- no shut

```
R1(config)#int g0
R1(config-if)#
*Oct 30 16:26:34.555: %PARSER-5-CFGLOG_LOGGEDCMD: User:console  logged command:interface GigabitEthernet0
R1(config-if)#ip address 10.41.30.116 255.255.255.0
R1(config-if)#end
```

Commands entered:
Router eigrp 100
Network 10.1.1.1 255.255.255.0
Network 10.1.1.5 255.255.255.0
Network 209.165.200.0 0.0.0.255
No auto-summ
No passive-int g0

```
R1(config)#router eigrp 100
R1(config-router)#
*Oct 30 16:40:16.792: %PARSER-5-CFGLOG_LOGGEDCMD: User:console  logged command:router eigrp 100
R1(config-router)#network 10.1.1.1 255.255.255.0
R1(config-router)#
*Oct 30 16:41:23.212: %PARSER-5-CFGLOG_LOGGEDCMD: User:console  logged command:network 10.1.1.1 255.255.255.0
R1(config-router)#network 10.1.1.5 255.255.255.0
R1(config-router)#
*Oct 30 16:41:35.980: %PARSER-5-CFGLOG_LOGGEDCMD: User:console  logged command:network 10.1.1.5 255.255.255.0
R1(config-router)#network 209.165.200.0 0.0.0.255
R1(config-router)#
*Oct 30 16:42:22.575: %PARSER-5-CFGLOG_LOGGEDCMD: User:console  logged command:network 209.165.200.0 0.0.0.255
R1(config-router)#no auto-summ
R1(config-router)#n
*Oct 30 16:42:28.599: %PARSER-5-CFGLOG_LOGGEDCMD: User:console  logged command:no auto-summary
R1(config-router)#no passive-int g0
%EIGRP: Interface GigabitEthernet0 is not a member of this routing table
R1(config-router)#
*Oct 30 16:42:34.496: %PARSER-5-CFGLOG_LOGGEDCMD: User:console  logged command:no passive-interface GigabitEthern
et0
R1(config-router)#end
R1#
*Oct 30 16:42:37.631: %SYS-5-CONFIG_I: Configured from console by console
R1#
```

Ipv6 router eigrp 100
No shut
Int g0/0

6. Verification the issue is resolved

```
R1#show ip int br
Any interface listed with OK? value "NO" does not have a valid configuration

Interface           IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0/0  10.1.1.1        YES TFTP   up                    up
GigabitEthernet0/0/1  10.1.2.2        YES TFTP   up                    up
GigabitEthernet0/0/2  unassigned      YES unset  administratively down down
Serial0/1/0         unassigned      NO  unset  up                    down
Serial0/1/1         unassigned      NO  unset  up                    down
GigabitEthernet0     10.41.30.116    YES manual up                    up
Loopback0           10.1.201.1      YES TFTP   up                    up
R1#
```
1.

Ipv6 unicast routing does not affect in the routing
If unicast routing works..
Make sure ipv6 unicast routing is on all 6 devices