CCNP ENARSI

Incident 03

IPv4 Area 1 Prefix Withdrawal

Student troubleshooting workbook | Shared dual-stack OSPF network

The branch IPv4 gateway works locally but other sites have lost the branch IPv4 prefix. IPv6 to the same client remains healthy.

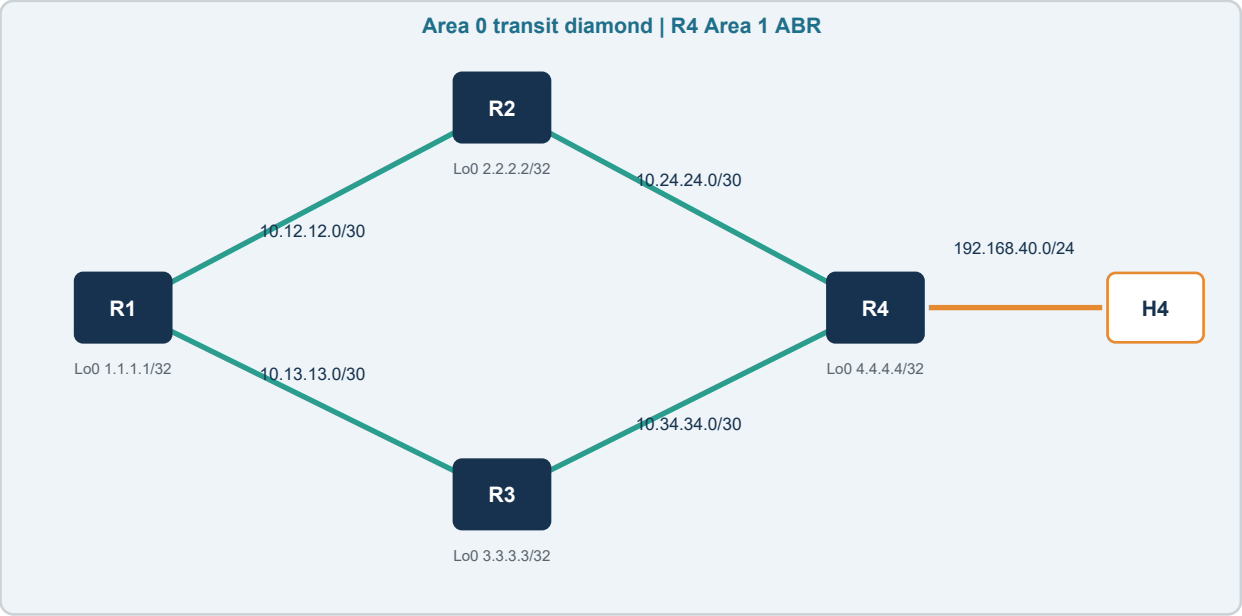
CLI annotations: GREEN - expected healthy result; YELLOW - warning or interpretation required; RED - fault or failed requirement. Colors are workbook annotations, not native CLI colors. Variable timers and ages may differ. Yellow/red items include a one-line reason.

1. Ticket and business impact

The branch IPv4 gateway works locally but other sites have lost the branch IPv4 prefix. IPv6 to the same client remains healthy.

2. Approved healthy network

The healthy reference has two Area 0 paths per address family, two FULL neighbors on each router, R4 Area 1 advertisements and successful H4 reachability from R1. Compare the observed state with the master workbook before making changes.



Connection and address plan

Link	IPv4 endpoints	IPv6 endpoints
R1 e0/0 - R2 e0/0	10.12.12.1/30 | 10.12.12.2/30	2001:DB8:12::1/64 | 2001:DB8:12::2/64
R2 e0/1 - R4 e0/0	10.24.24.1/30 | 10.24.24.2/30	2001:DB8:24::1/64 | 2001:DB8:24::2/64
R1 e0/1 - R3 e0/0	10.13.13.1/30 | 10.13.13.2/30	2001:DB8:13::1/64 | 2001:DB8:13::2/64
R3 e0/1 - R4 e0/1	10.34.34.1/30 | 10.34.34.2/30	2001:DB8:34::1/64 | 2001:DB8:34::2/64
R4 e0/2 - H4 e0/0	192.168.40.1/24 | .10/24	2001:DB8:40::1/64 | ::10/64

Router Loopback0: Rn uses n.n.n.n/32 and 2001:DB8:n::n/128. R4 is Area 0/1 ABR. H4 has static default routes to R4.

3. Incident starting file and rules

Open only Lab 08 OSPF Production Troubleshooting Challenge-incident-03.unl. This file is a separate copy of the healthy network with one injected change. Do not use the healthy save-config file as the broken ticket. Preserve

unrelated services and restrict edits to the fault you can prove.

4. Initial symptoms: actual CLI evidence

Actual CLI output - R1

```
R1# show ip ospf neighbor
Neighbor ID     Pri   State           Dead Time   Address         Interface
3.3.3.3           0   FULL/  -        00:00:38    10.13.13.2      Ethernet0/1
2.2.2.2           0   FULL/  -        00:00:36    10.12.12.2      Ethernet0/0
```

Actual CLI output - R1

```
R1# show ipv6 ospf neighbor
            OSPFv3 Router with ID (1.1.1.1) (Process ID 30)
Neighbor ID     Pri   State           Dead Time   Interface ID    Interface
3.3.3.3           0   FULL/  -        00:00:30    1               Ethernet0/1
2.2.2.2           0   FULL/  -        00:00:39    1               Ethernet0/0
```

Actual CLI output - R1

```
R1# show ip route 192.168.40.0
% Network not in table
```

ERROR - This incident has lost the required remote prefix or forwarding result; locate the missing control-plane evidence before editing.

Actual CLI output - R1

```
R1# show ipv6 route 2001:DB8:40::/64
Routing entry for 2001:DB8:40::/64
  Known via "ospf 30", distance 110, metric 30, type inter area
  Route count is 2/2, share count 0
  Routing paths:
    FE80::A8BB:CCFF:FE00:3000, Ethernet0/1
      Route metric is 30, traffic share count is 1
      From FE80::A8BB:CCFF:FE00:3000
      Last updated 00:03:23 ago
    FE80::A8BB:CCFF:FE00:2000, Ethernet0/0
      Route metric is 30, traffic share count is 1
      From FE80::A8BB:CCFF:FE00:2000
      Last updated 00:03:23 ago
```

Actual CLI output - R1

```
R1# ping 192.168.40.10 source Loopback0
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.40.10, timeout is 2 seconds:
Packet sent with a source address of 1.1.1.1
.....
Success rate is 0 percent (0/5)
```

ERROR - This incident has lost the required remote prefix or forwarding result; locate the missing control-plane evidence before editing.

Actual CLI output - R1

```
R1# ping 2001:DB8:40::10 source Loopback0
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 2001:DB8:40::10, timeout is 2 seconds:
Packet sent with a source address of 2001:DB8:1::1
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/9 ms
```

5. Investigation workspace

Record the first failed or degraded service, the exact command and output, the last known healthy observation, and a hypothesis. Then compare OSPFv2 and OSPFv3 neighbor states, the Area 1 routes and the unchanged local gateway. Do not repair until the evidence identifies a specific configuration boundary.

Questions: Which address family is affected? Is an adjacency missing, a prefix withdrawn or just one equal-cost next hop absent? Which routes and client probes remain healthy? What is the smallest change that restores the approved state?

6. Service boundary and success criteria

Intended investigation scope: R4 stops advertising 192.168.40.0/24 to Area 0; remote IPv4 client tests fail.

Services that must remain healthy: Local H4-to-R4 IPv4 gateway; all OSPFv2 transits; all IPv6 neighbor and client paths.

7. Final regression checklist

After repair require: both OSPFv2 and OSPFv3 FULL neighbor matrices; two installed branch next hops in each address family; H4 local gateway responses; successful R1-to-H4 and H4-to-R1 IPv4/IPv6 pings; no new route loss or configuration change outside this ticket. Record the evidence and only then save.

Use the matching Solution Guide only after your investigation and proposed repair are complete.