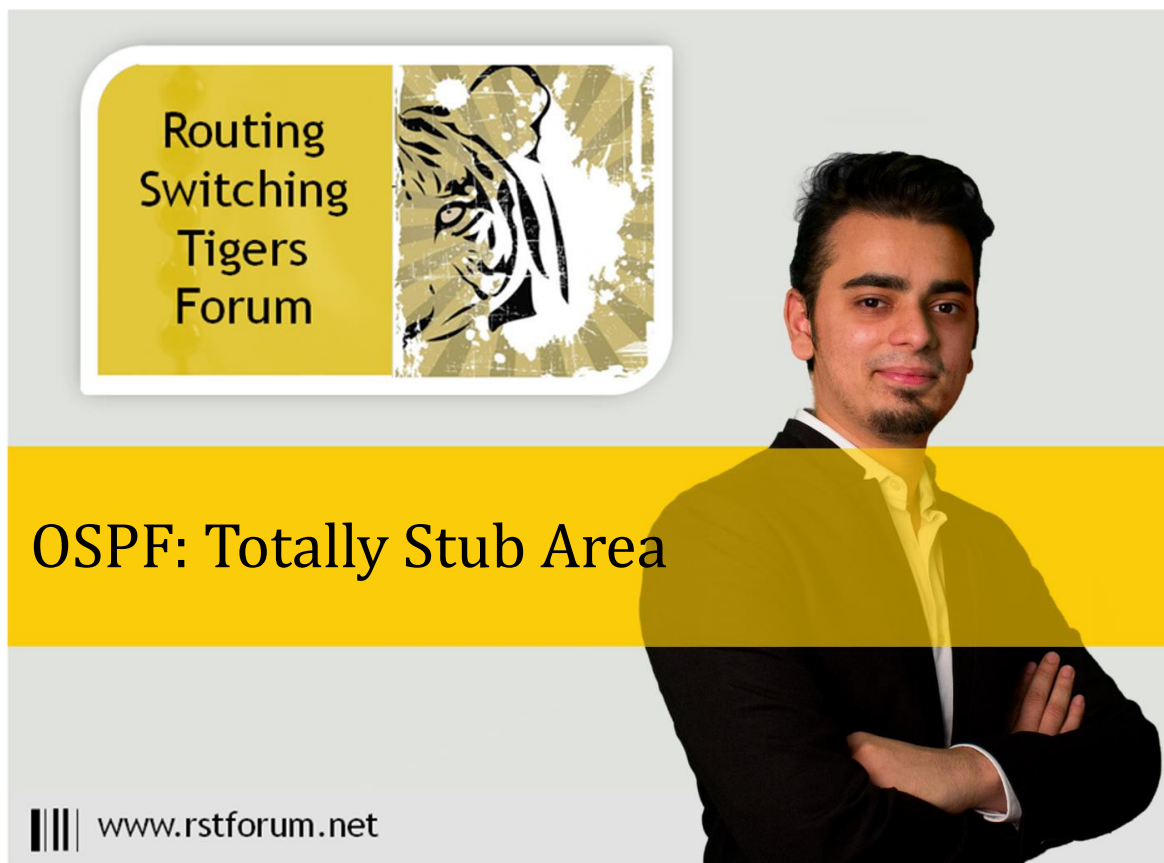


LAB14: OSPF – IPv6

Disclaimer

This Configuration Guide is designed to assist members to enhance their skills in respective technology area. While every effort has been made to ensure that all material is as complete and accurate as possible, the enclosed material is presented on an “as is” basis. Neither the authors nor Forum assume any liability or responsibility to any person or entity with respect to loss or damages incurred from the information contained in this guide. This Lab Guide was developed by RSTForum. Any similarities between material presented in this configuration guide and any other material is completely coincidental.



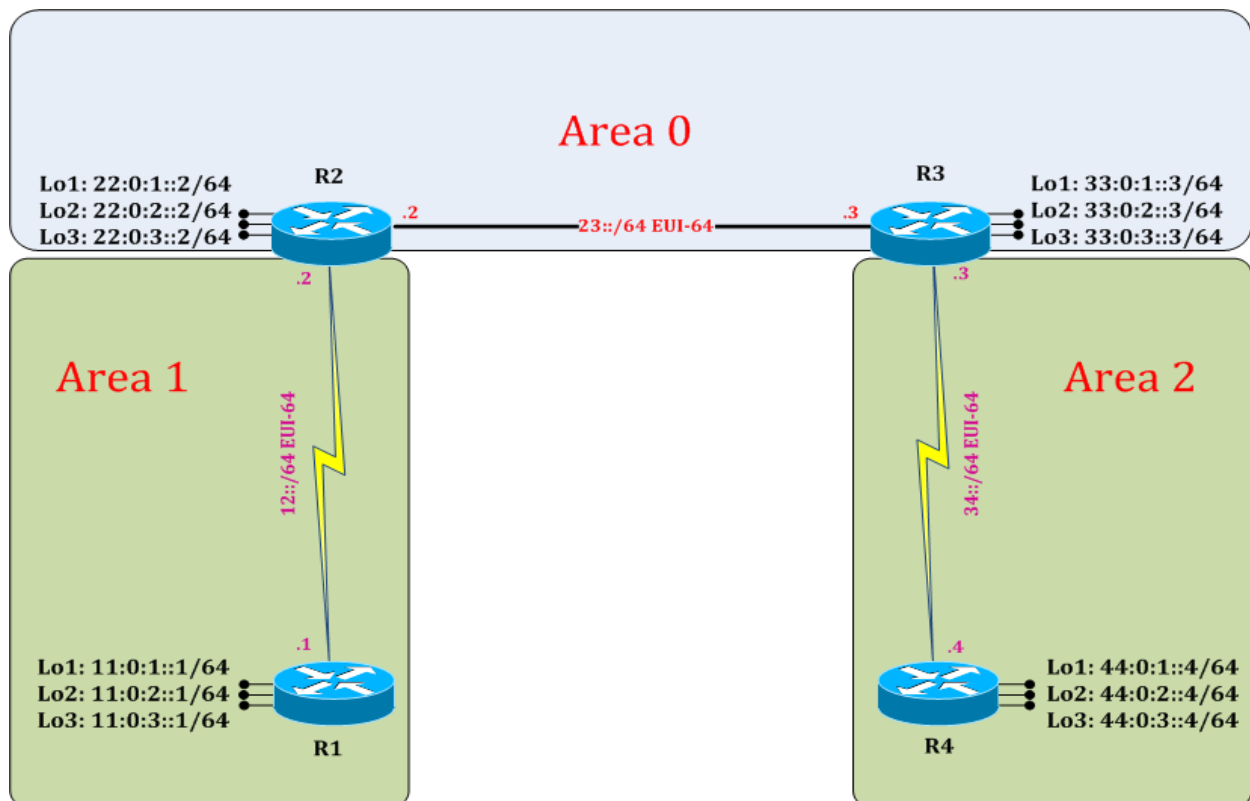
Routing
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OSPF: Totally Stub Area

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LAB 14: Diagram

Note: This Lab was developed on Cisco IOS Version 15.2(4) M1 ADVENTERPRISEK9-M.



LAB 14: Ipv6 OSPF Totally Stubby Area:

Task 1: Configure IPv6 OSPF Totally Stubby Area

Step 1 In the configuration mode of router configure loopbacks with network address in sequence & redistribute these connected network in IPv6 OSPF process:

R1:

```
interface loopback 101
ipv6 address 100:0:1::2/64
interface loopback 102
ipv6 address 100:0:2::2/64
interface loopback 103
ipv6 address 100:0:3::2/64
exit
```

R1:

```
router ospf 1
redistribute connected subnet metric-type 1
exit
```

R2#show ipv6 route

! (Shows router's routing table and IPv6 routes entries)

IPv6 Routing Table - default - 17 entries

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

B - BGP, HA - Home Agent, MR - Mobile Router, R - RIP

H - NHRP, I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea

IS - ISIS summary, D - EIGRP, EX - EIGRP external, NM - NEMO

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, I - LISP

```
O 11:0:1::1/128 [110/64]
  via FE80::A8BB:CCFF:FE00:100, Serial2/0
O 11:0:2::1/128 [110/64]
  via FE80::A8BB:CCFF:FE00:100, Serial2/0
O 11:0:3::1/128 [110/64]
  via FE80::A8BB:CCFF:FE00:100, Serial2/0
C 12::/64 [0/0]
  via Serial2/0, directly connected
L 12::A8BB:CCFF:FE00:200/128 [0/0]
  via Serial2/0, receive
C 22:0:1::/64 [0/0]
  via Loopback1, directly connected
L 22:0:1::2/128 [0/0]
  via Loopback1, receive

C 22:0:2::/64 [0/0]
```

```

    via Loopback2, directly connected
L 22:0:2::2/128 [0/0]
    via Loopback2, receive
C 22:0:3::/64 [0/0]
    via Loopback3, directly connected
L 22:0:3::2/128 [0/0]
    via Loopback3, receive
C 23::/64 [0/0]
    via Ethernet0/0, directly connected
L 23::A8BB:CCFF:FE00:200/128 [0/0]
    via Ethernet0/0, receive
OE1 100:0:1::/64 [110/84]
    via FE80::A8BB:CCFF:FE00:100, Serial2/0
OE1 100:0:2::/64 [110/84]
    via FE80::A8BB:CCFF:FE00:100, Serial2/0
OE1 100:0:3::/64 [110/84]
    via FE80::A8BB:CCFF:FE00:100, Serial2/0
L FF00::/8 [0/0]
    via Null0, receive

```

Step 2 Configure OSPF Stub

```

R3:
ipv6 router ospf 1
area 2 stub no-summary
exit

```

```

R4:
ipv6 router ospf 1
area 2 stub no-summary
exit

```

Task 2: Verification:

Step 1 Verify routes on neighbor router routing table

```

R4#show ipv6 route
! (Shows router's routing table and IPv6 routes entries)

```

```

IPv6 Routing Table - default - 10 entries
Codes: C - Connected, L - Local, S - Static, U - Per-user Static route
B - BGP, HA - Home Agent, MR - Mobile Router, R - RIP
H - NHRP, I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea
IS - ISIS summary, D - EIGRP, EX - EIGRP external, NM - NEMO
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

```

OI ::/0 [110/65]

via FE80::A8BB:CCFF:FE00:300, Serial2/0

```
C 34::/64 [0/0]
  via Serial2/0, directly connected
L 34::A8BB:CCFF:FE00:400/128 [0/0]
  via Serial2/0, receive
C 44:0:1::/64 [0/0]
  via Loopback1, directly connected
L 44:0:1::4/128 [0/0]
  via Loopback1, receive
C 44:0:2::/64 [0/0]
  via Loopback2, directly connected
L 44:0:2::4/128 [0/0]
  via Loopback2, receive
C 44:0:3::/64 [0/0]
  via Loopback3, directly connected
L 44:0:3::4/128 [0/0]
  via Loopback3, receive
L FF00::/8 [0/0]
  via Null0, receive
```

(Total Stubby area is area in which external routes LSA 5 and Inter-area routes LSA3/4 does not propagate, instead it automatically creates default route ::/0 towards ABR.)

R4#traceroute 100:0:1::2

Type escape sequence to abort.

Tracing the route to 100:0:1::2

```
1 34::A8BB:CCFF:FE00:300 5 msec 10 msec 11 msec
2 23::A8BB:CCFF:FE00:200 10 msec 11 msec 10 msec
3 12::A8BB:CCFF:FE00:100 21 msec 19 msec 20 msec
```