

Lab 5: OSPF Single Area

Router 0:

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#192.168.1.0 0.0.0.255 area 0
                        ^
% Invalid input detected at '^' marker.

Router(config-router)#network 192.168.1.0 0.0.0.255 area 0
Router(config-router)#network 192.168.2.0 0.0.0.255 area 0
Router(config-router)#
01:40:14: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.3.1 on FastEthernet0/1 from
LOADING to FULL, Loading Done
```

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Router 1

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#network 192.168.2.0 0.0.0.255 area 0
Router(config-router)#ne
01:40:08: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.2.1 on FastEthernet0/0 from
LOADING to FULL, Loading Done

% Ambiguous command: "ne"
Router(config-router)#network 192.168.3.0 0.0.0.255 area 0
Router(config-router)#
01:41:42: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.4.1 on FastEthernet0/1 from
LOADING to FULL, Loading Done

Router(config-router)#|
```

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Router 2:

```
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#network 192.168.3.0 0.0.0.255 area 0
Router(config-router)#network
01:41:38: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.3.1 on FastEthernet0/0 from
LOADING to FULL, Loading Done

% Incomplete command.
Router(config-router)#network 192.168.4.0 0.0.0.255 area 0
Router(config-router)#
Router(config-router)#
```

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Show run:

```
interface FastEthernet0/0
 ip address 192.168.1.1 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 ip address 192.168.2.1 255.255.255.0
 duplex auto
 speed auto
!
interface Vlan1
 no ip address
 shutdown
!
router ospf 1
 log-adjacency-changes
 network 192.168.1.0 0.0.0.255 area 0
 network 192.168.2.0 0.0.0.255 area 0
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
!
!
line con 0
!
```

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show ip route R1#show ip route ospf R1#show ip protocols

```
Router#show ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    192.168.1.0/24 is directly connected, FastEthernet0/0
C    192.168.2.0/24 is directly connected, FastEthernet0/1
O    192.168.3.0/24 [110/2] via 192.168.2.2, 00:06:02, FastEthernet0/1
O    192.168.4.0/24 [110/3] via 192.168.2.2, 00:04:27, FastEthernet0/1

Router#show ip route ospf
O    192.168.3.0 [110/2] via 192.168.2.2, 00:06:17, FastEthernet0/1
O    192.168.4.0 [110/3] via 192.168.2.2, 00:04:42, FastEthernet0/1

Router#show ip protocols

Routing Protocol is "ospf 1"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Router ID 192.168.2.1
  Number of areas in this router is 1. 1 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    192.168.1.0 0.0.0.255 area 0
    192.168.2.0 0.0.0.255 area 0
  Routing Information Sources:
    Gateway         Distance      Last Update
    192.168.2.1          110          00:06:56
    192.168.3.1          110          00:05:23
    192.168.4.1          110          00:04:58
  Distance: (default is 110)

Router#
```

Outputs for R1#show ip ospf interface fa0/0

R1#show ip ospf neighbor

R1#show ip ospf database

```
Router#show ip ospf interface fa0/0

FastEthernet0/0 is up, line protocol is up
  Internet address is 192.168.1.1/24, Area 0
  Process ID 1, Router ID 192.168.2.1, Network Type BROADCAST, Cost: 1
  Transmit Delay is 1 sec, State DR, Priority 1
  Designated Router (ID) 192.168.2.1, Interface address 192.168.1.1
  No backup designated router on this network
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello due in 00:00:08
  Index 1/1, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 1, maximum is 1
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 0, Adjacent neighbor count is 0
  Suppress hello for 0 neighbor(s)

Router#show ip ospf neighbor

Neighbor ID      Pri   State           Dead Time   Address        Interface
192.168.3.1      1    FULL/BDR        00:00:33    192.168.2.2    FastEthernet0/1

Router#show ip ospf database

  OSPF Router with ID (192.168.2.1) (Process ID 1)

      Router Link States (Area 0)

Link ID         ADV Router    Age      Seq#          Checksum Link count
192.168.2.1     192.168.2.1   560      0x80000003    0x0034f1  2
192.168.3.1     192.168.3.1   467      0x80000004    0x00b8f9  2
192.168.4.1     192.168.4.1   442      0x80000003    0x0052c9  2

      Net Link States (Area 0)

Link ID         ADV Router    Age      Seq#          Checksum
192.168.2.1     192.168.2.1   560      0x80000001    0x00f352
192.168.3.1     192.168.3.1   467      0x80000001    0x000a36

Router#
```

Ping command output:

```
C:\>ping 192.168.4.4

Pinging 192.168.4.4 with 32 bytes of data:

Reply from 192.168.4.4: bytes=32 time<1ms TTL=125
Reply from 192.168.4.4: bytes=32 time=10ms TTL=125
Reply from 192.168.4.4: bytes=32 time=1ms TTL=125
Reply from 192.168.4.4: bytes=32 time=1ms TTL=125

Ping statistics for 192.168.4.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 10ms, Average = 3ms

C:\>|
```