
CSE 1004 - (Networks and Communication)

LAB

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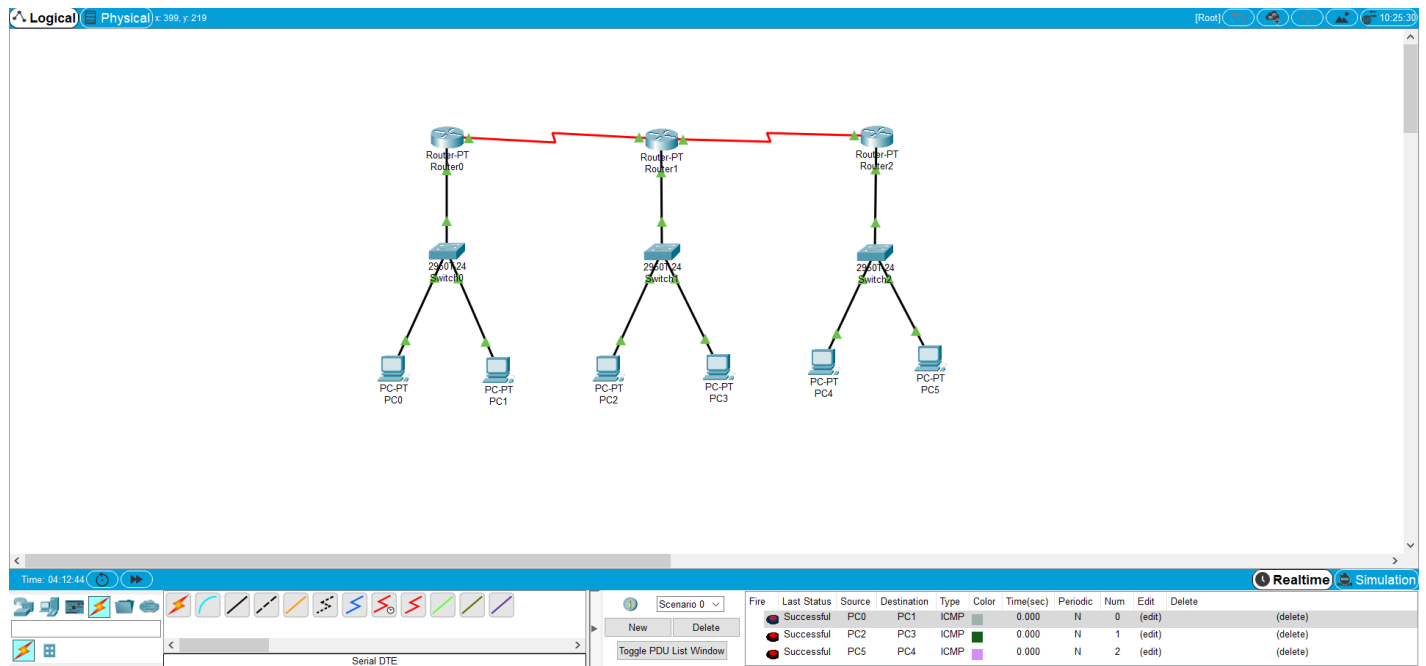
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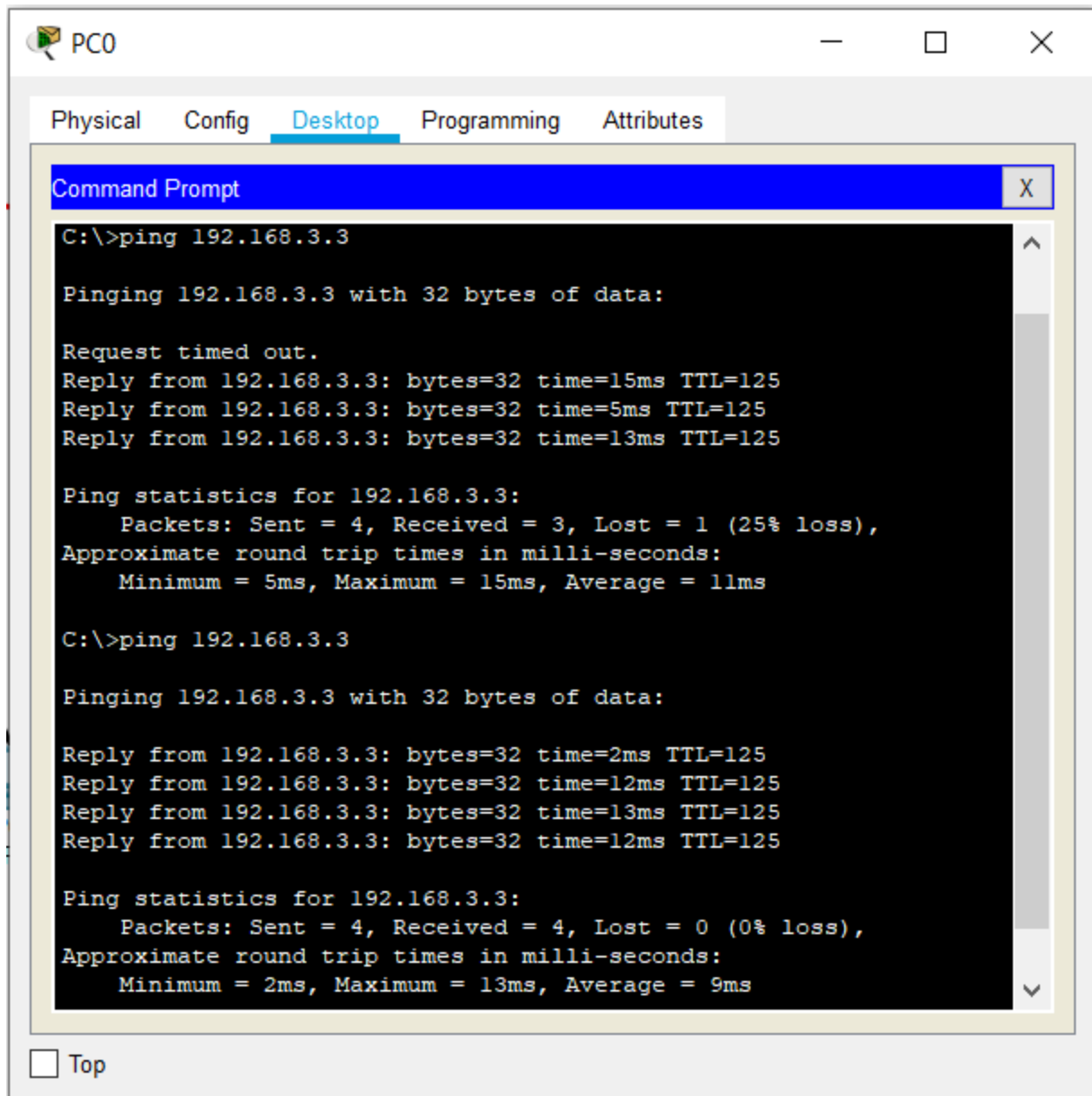
(Q)

Print the details of following commands for any of the router in the network [consider both Single area OSPF and Multiarea OSPF]

- #sh ip int br/brief**
- #sh ip protocols/pro**
- #sh ip ospf neighbor/ne**
- #sh ip ospf database/d**
- #sh ip route**

Single Area OSPF Config:





```
Router>show ip int brief
Interface          IP-Address      OK? Method Status
Protocol
FastEthernet0/0    192.168.1.1     YES manual up
up
FastEthernet1/0    unassigned      YES unset
administratively down down
Serial2/0          10.0.0.1        YES manual up
up
Serial3/0          unassigned      YES unset
administratively down down
FastEthernet4/0    unassigned      YES unset
administratively down down
FastEthernet5/0    unassigned      YES unset
administratively down down
Router>show ip protocols
```

```
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 192.168.1.1
  Number of areas in this router is 1. 1 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    192.0.0.0 0.255.255.255 area 0
    10.0.0.0 0.0.0.255 area 0
  Routing Information Sources:
    Gateway         Distance      Last Update
    192.168.1.1      110          00:00:41
    192.168.2.1      110          00:00:41
    192.168.3.1      110          00:00:41
  Distance: (default is 110)
```

```
Router>show ip ospf neighbor

Neighbor ID      Pri   State           Dead Time   Address
Interface
192.168.2.1      0     FULL/ -         00:00:36    10.0.0.2
Serial2/0
```

```

Router>show ip ospf database
      OSPF Router with ID (192.168.1.1) (Process ID 1)

      Router Link States (Area 0)

Link ID      ADV Router    Age      Seq#         Checksum
Link count
192.168.1.1   192.168.1.1   96       0x800000006  0x007776 3
192.168.3.1   192.168.3.1   96       0x800000006  0x008350 3
192.168.2.1   192.168.2.1   96       0x80000000b  0x002c83 5

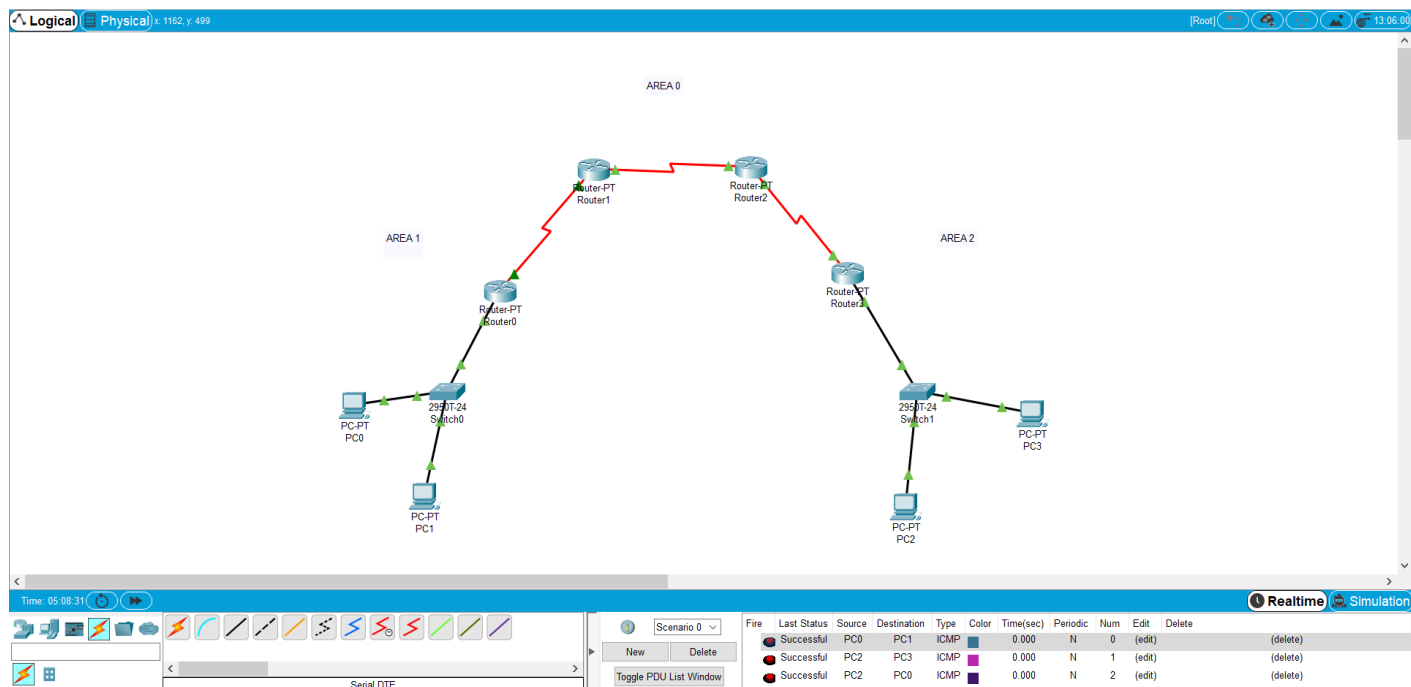
Router>show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile,
B - BGP
      D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter
area
      N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external
type 2
      E1 - OSPF external type 1, E2 - OSPF external type 2, E -
EGP
      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    10.0.0.0/8 is directly connected, Serial2/0
O    20.0.0.0/8 [110/128] via 10.0.0.2, 00:01:45, Serial2/0
C    192.168.1.0/24 is directly connected, FastEthernet0/0
O    192.168.2.0/24 [110/65] via 10.0.0.2, 00:01:45, Serial2/0
O    192.168.3.0/24 [110/129] via 10.0.0.2, 00:01:35, Serial2/0

```

Multi Area OSPF Config:





PC0



Physical

Config

Desktop

Programming

Attributes

Command Prompt



```
Pinging 192.168.2.3 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.3: bytes=32 time=14ms TTL=124
Reply from 192.168.2.3: bytes=32 time=13ms TTL=124
Reply from 192.168.2.3: bytes=32 time=18ms TTL=124

Ping statistics for 192.168.2.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 13ms, Maximum = 18ms, Average = 15ms

C:\>ping 192.168.2.3

Pinging 192.168.2.3 with 32 bytes of data:

Reply from 192.168.2.3: bytes=32 time=3ms TTL=124
Reply from 192.168.2.3: bytes=32 time=25ms TTL=124
Reply from 192.168.2.3: bytes=32 time=14ms TTL=124
Reply from 192.168.2.3: bytes=32 time=11ms TTL=124

Ping statistics for 192.168.2.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 3ms, Maximum = 25ms, Average = 13ms

C:\>
```



Top

Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>sh ip int br
```

Interface	IP-Address	OK?	Method	Status
FastEthernet0/0	192.168.1.1	YES	manual	up
FastEthernet1/0	unassigned	YES	unset	administratively down
Serial2/0	10.0.0.1	YES	manual	up
Serial3/0	unassigned	YES	unset	administratively down
FastEthernet4/0	unassigned	YES	unset	administratively down
FastEthernet5/0	unassigned	YES	unset	administratively down

Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>sh ip pro
```

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 192.168.1.1

Number of areas in this router is 1. 1 normal 0 stub 0 nssa

Maximum path: 4

Routing for Networks:

```
192.0.0.0 0.255.255.255 area 1
10.0.0.0 0.0.0.255 area 1
```

Routing Information Sources:

Gateway	Distance	Last Update
20.0.0.1	110	00:15:21
192.168.1.1	110	00:15:21

Distance: (default is 110)



Router0

Physical Config CLI Attributes

IOS Command Line Interface

Router>sh ip ospf ne

Neighbor ID	Pri	State	Dead Time	Address
Interface				
20.0.0.1	0	FULL/ -	00:00:35	10.0.0.2
Serial2/0				



Router0

Physical Config CLI Attributes

IOS Command Line Interface

Router>sh ip ospf d

OSPF Router with ID (192.168.1.1) (Process ID 1)

Router Link States (Area 1)

Link ID	ADV Router	Age	Seq#	Checksum
Link count				
192.168.1.1	192.168.1.1	1105	0x80000006	0x004ff5 3
20.0.0.1	20.0.0.1	1105	0x80000006	0x005cb8 2

Summary Net Link States (Area 1)

Link ID	ADV Router	Age	Seq#	Checksum
20.0.0.0	20.0.0.1	1648	0x80000001	0x004ca9
30.0.0.0	20.0.0.1	1327	0x80000002	0x004a60
192.168.2.0	20.0.0.1	1269	0x80000003	0x001249

```
Router>sh 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    10.0.0.0/8 is directly connected, Serial2/0
O IA 20.0.0.0/8 [110/128] via 10.0.0.2, 00:18:31, Serial2/0
O IA 30.0.0.0/8 [110/192] via 10.0.0.2, 00:18:31, Serial2/0
C    192.168.1.0/24 is directly connected, FastEthernet0/0
O IA 192.168.2.0/24 [110/193] via 10.0.0.2, 00:18:31, Serial2/0
```
