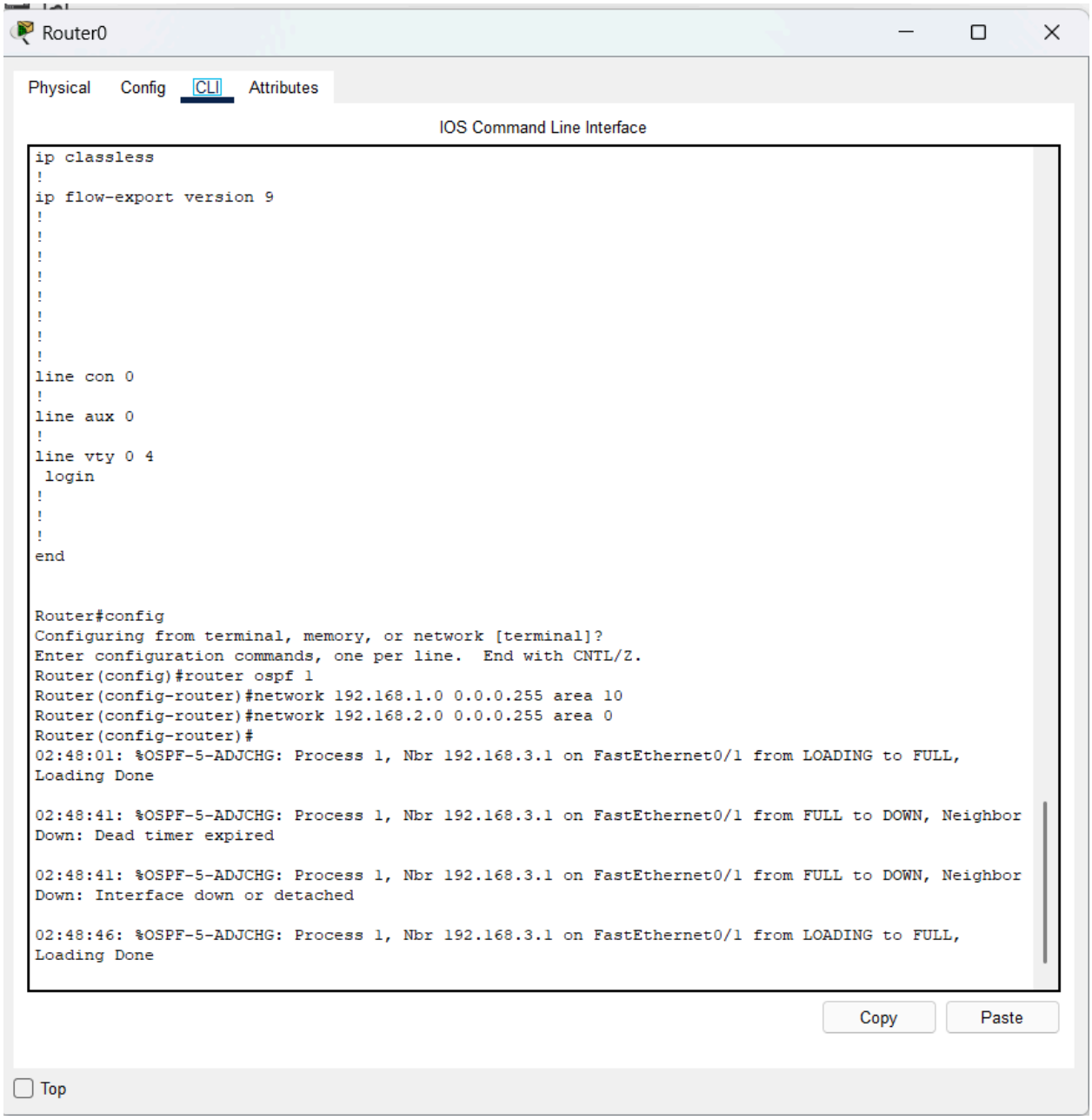
OSPF Multi Area
Adding networks



Router1

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>enable
Router#config
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#no rout
02:43:27: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.2.1 on FastEthernet0/0 from FULL to DOWN, Neighbor
Down: Dead timer expired

02:43:27: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.2.1 on FastEthernet0/0 from FULL to DOWN, Neighbor
Down: Interface down or detached

% Incomplete command.
Router(config)#no router ospf 1
Router(config)#router ospf 1
Router(config-router)#network 192.168.2.0 0.0.0.255 area 0
Router(config-router)#network
02:47:55: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.2.1 on FastEthernet0/0 from LOADING to FULL,
Loading Done

% Incomplete command.
Router(config-router)#network 192.168.3.0 0.0.0.255 area 0
Router(config-router)#
02:48:36: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.2.1 on FastEthernet0/0 from FULL to DOWN, Neighbor
Down: Dead timer expired

02:48:36: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.2.1 on FastEthernet0/0 from FULL to DOWN, Neighbor
Down: Interface down or detached

02:48:41: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.2.1 on FastEthernet0/0 from LOADING to FULL,
Loading Done

02:51:11: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.4.1 on FastEthernet0/1 from LOADING to FULL,
Loading Done
```

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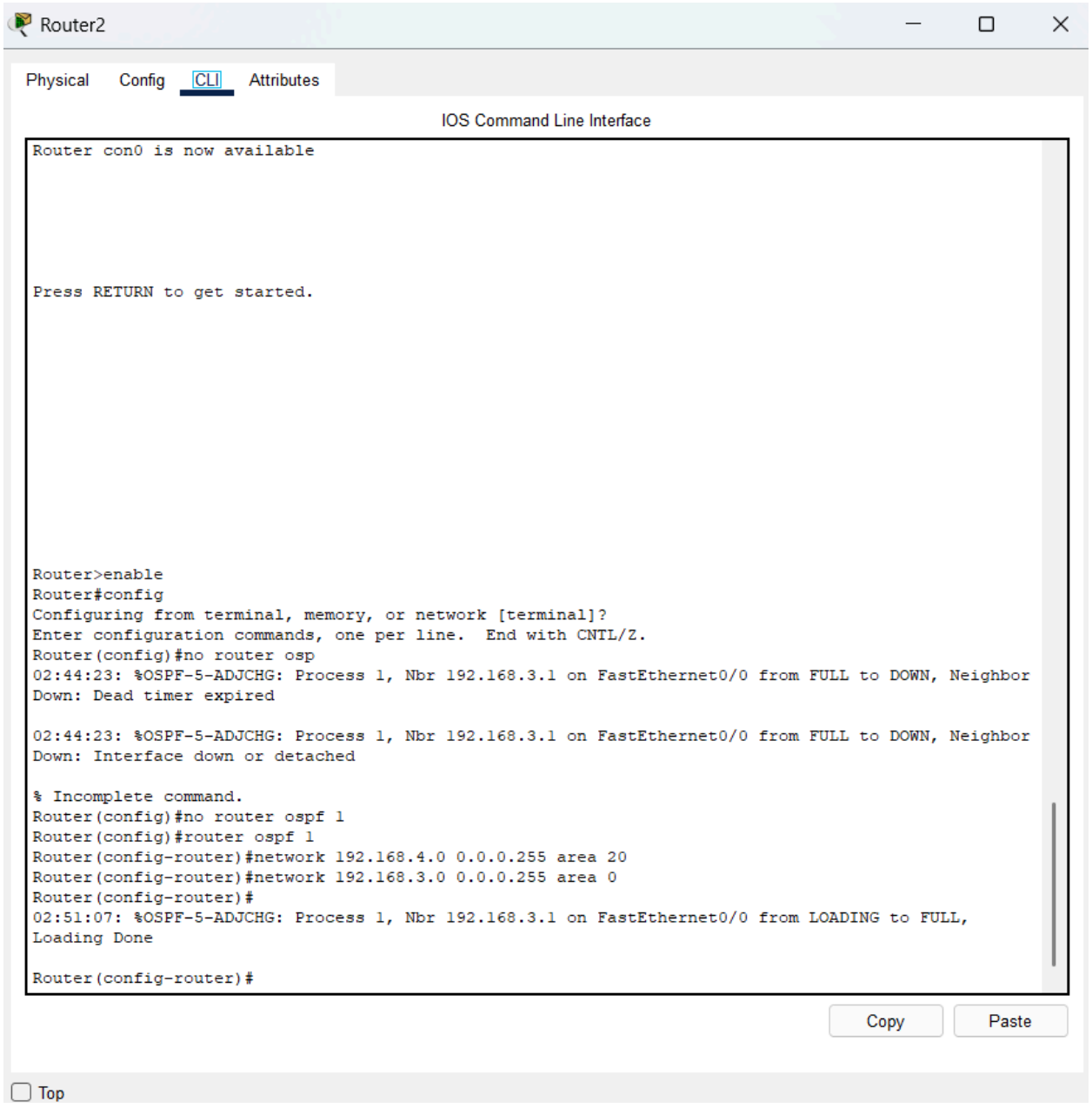
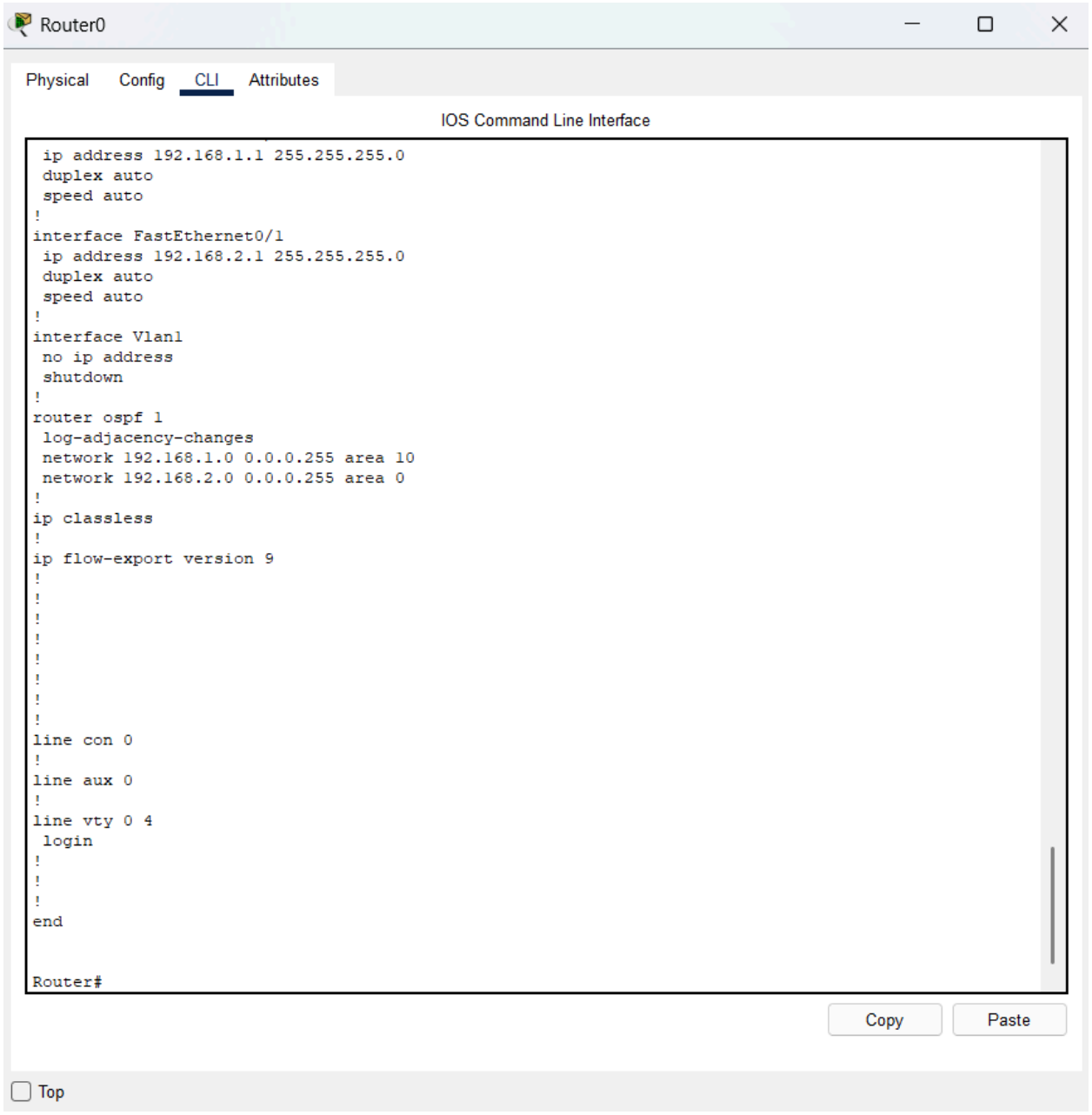


Commands - ip show run and different commands


Router0
Physical
Config
CLI
Attributes
IOS Command Line Interface
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 10
network 192.168.2.0 0.0.0.255 area 0
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
login
!
!
!
end
Router#
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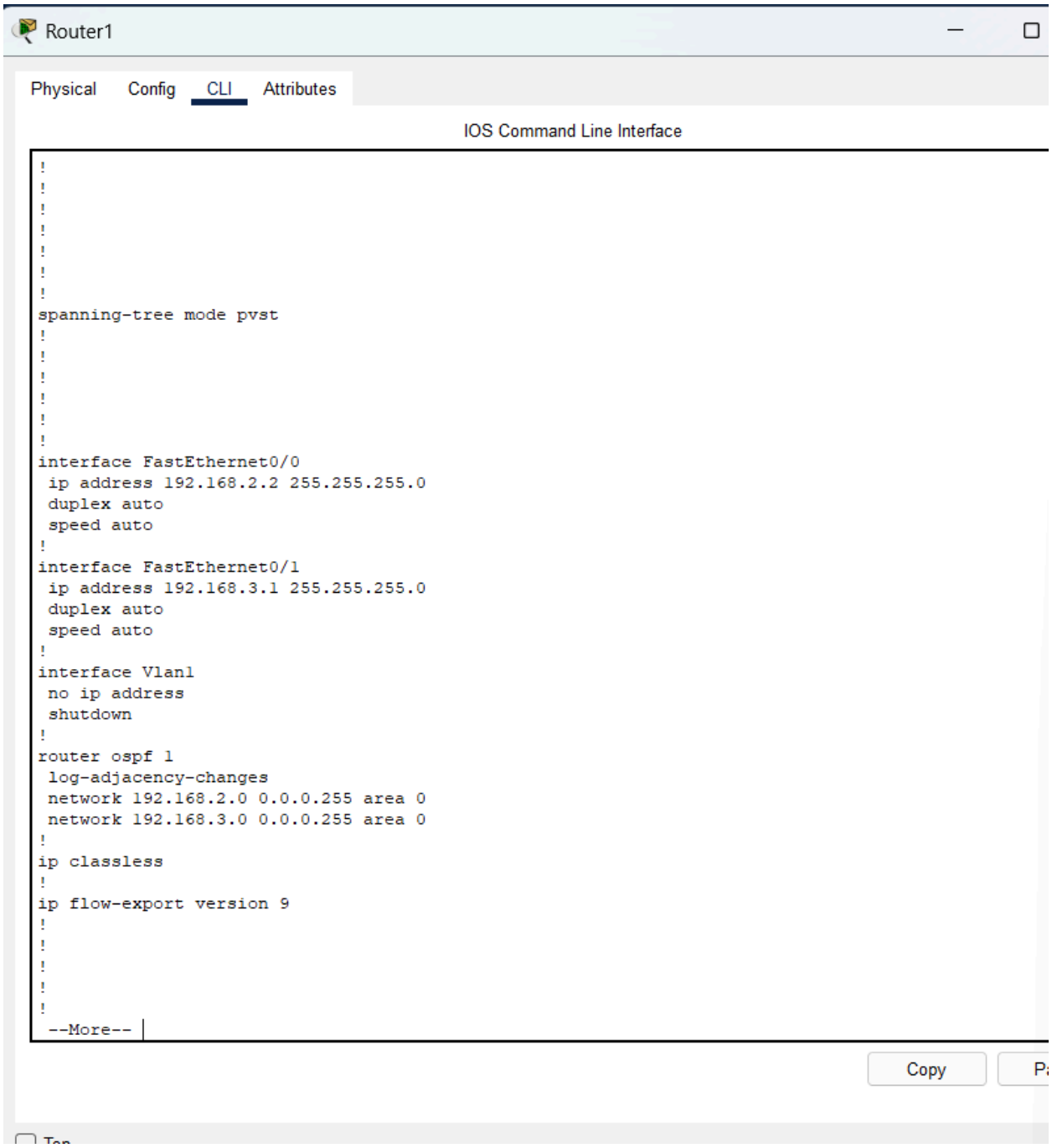
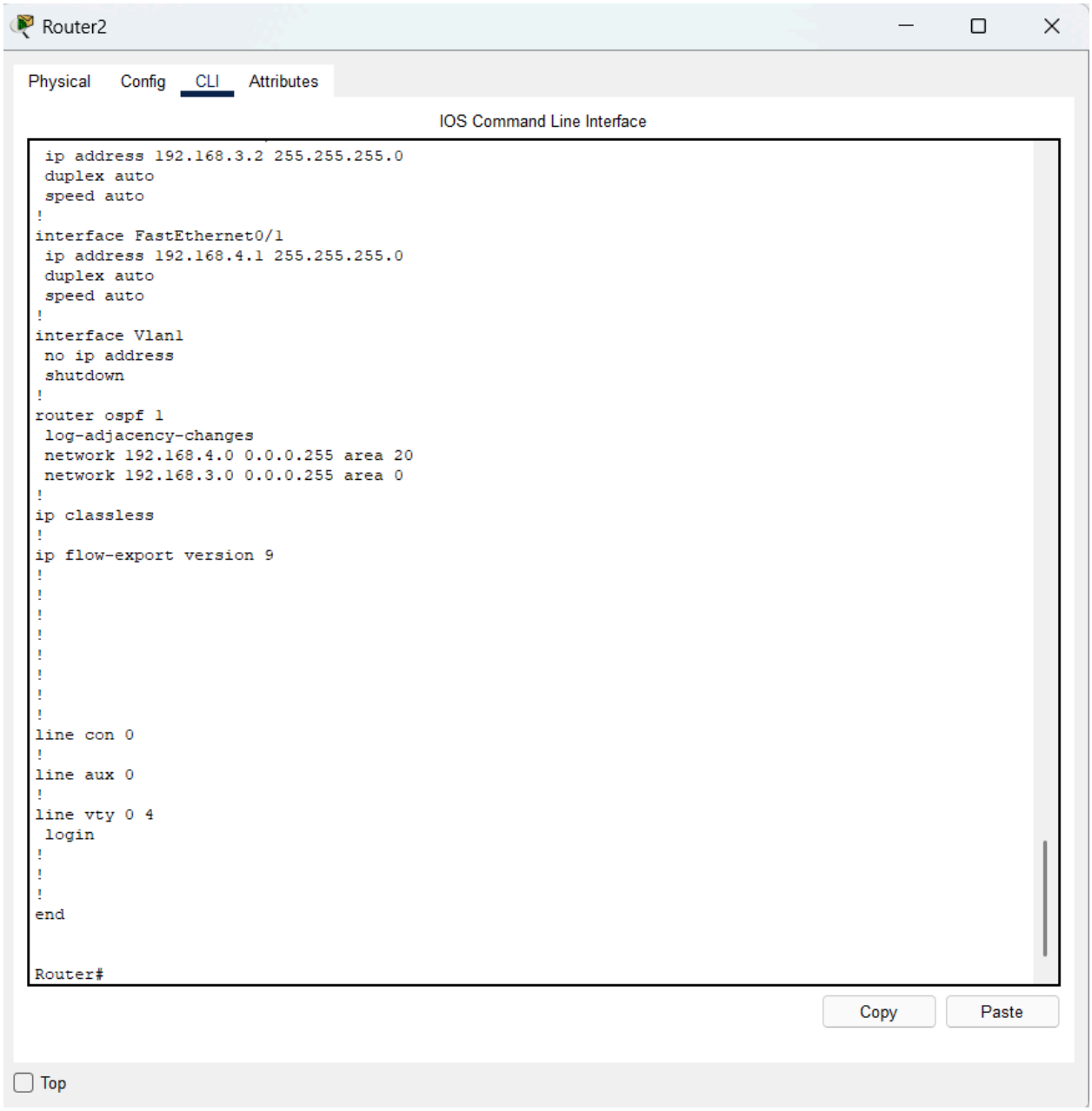

Router1
Physical
Config
CLI
Attributes
IOS Command Line Interface
!
!
!
!
!
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface FastEthernet0/0
 ip address 192.168.2.2 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 ip address 192.168.3.1 255.255.255.0
 duplex auto
 speed auto
!
interface Vlan1
 no ip address
 shutdown
!
router ospf 1
 log-adjacency-changes
 network 192.168.2.0 0.0.0.255 area 0
 network 192.168.3.0 0.0.0.255 area 0
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
 --More--
Copy


Router2
Physical
Config
CLI
Attributes
IOS Command Line Interface
ip address 192.168.3.2 255.255.255.0
duplex auto
speed auto
!
interface FastEthernet0/1
ip address 192.168.4.1 255.255.255.0
duplex auto
speed auto
!
interface Vlan1
no ip address
shutdown
!
router ospf 1
log-adjacency-changes
network 192.168.4.0 0.0.0.255 area 20
network 192.168.3.0 0.0.0.255 area 0
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
login
!
!
!
end
Router#
Copy
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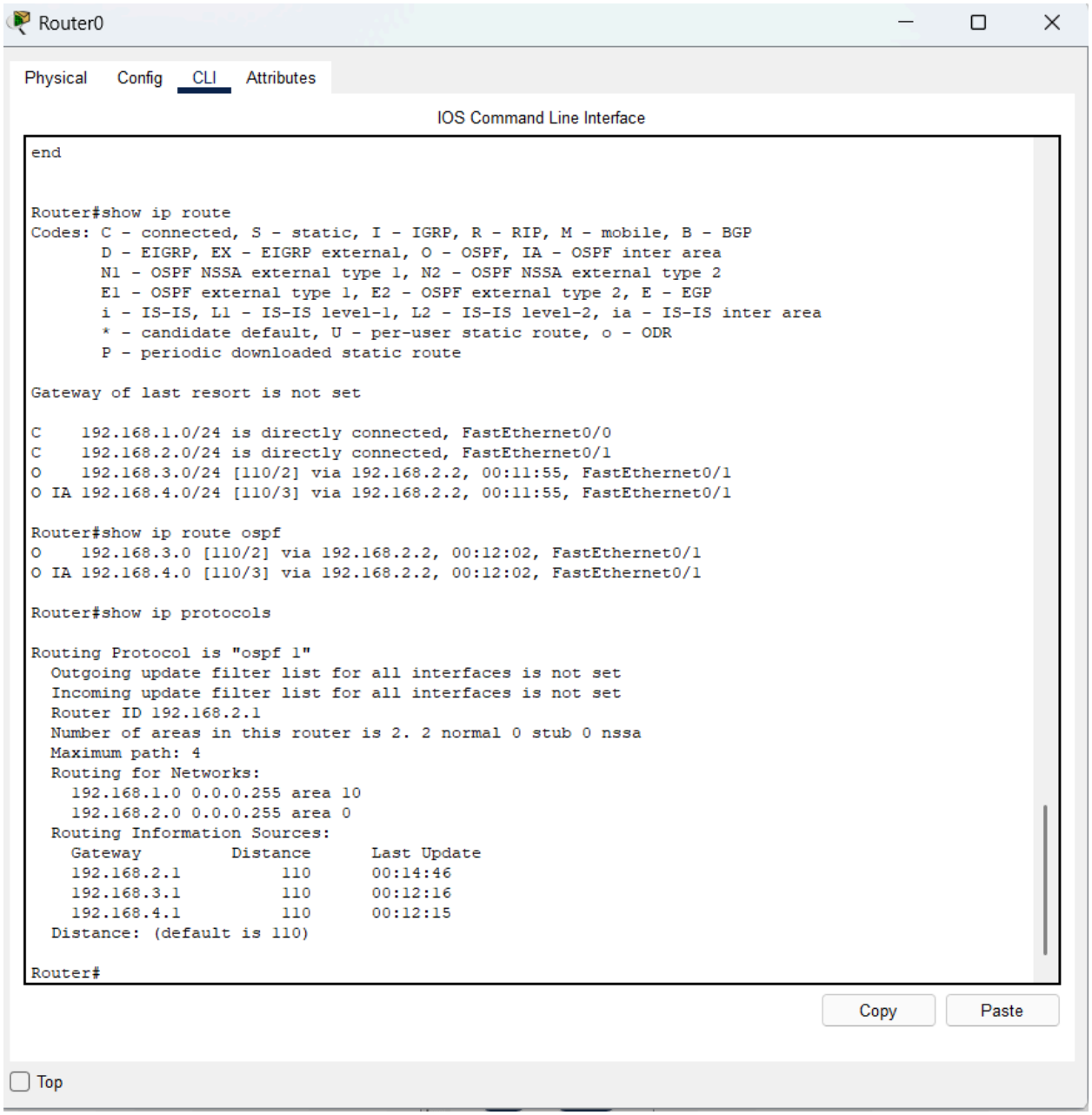
Top


Router0
Physical
Config
CLI
Attributes
IOS Command Line Interface
end
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, 00:11:55, FastEthernet0/1
O IA 192.168.4.0/24 [110/3] via 192.168.2.2, 00:11:55, FastEthernet0/1
Router#show ip route ospf
O 192.168.3.0 [110/2] via 192.168.2.2, 00:12:02, FastEthernet0/1
O IA 192.168.4.0 [110/3] via 192.168.2.2, 00:12:02, 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 2. 2 normal 0 stub 0 nssa
Maximum path: 4
Routing for Networks:
192.168.1.0 0.0.0.255 area 10
192.168.2.0 0.0.0.255 area 0
Routing Information Sources:
Gateway Distance Last Update
192.168.2.1 110 00:14:46
192.168.3.1 110 00:12:16
192.168.4.1 110 00:12:15
Distance: (default is 110)
Router#
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```
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     942         0x80000004 0x00ff9e 1
192.168.3.1     192.168.3.1     792         0x80000006 0x00d4d9 2
192.168.4.1     192.168.4.1     791         0x80000002 0x000495 1

                Net Link States (Area 0)
Link ID         ADV Router      Age         Seq#       Checksum
192.168.2.2     192.168.3.1     987         0x80000001 0x00d273
192.168.3.2     192.168.4.1     792         0x80000001 0x0061d4

                Summary Net Link States (Area 0)
Link ID         ADV Router      Age         Seq#       Checksum
192.168.1.0     192.168.2.1     1042        0x80000001 0x00b6d0
192.168.4.0     192.168.4.1     791         0x80000001 0x0087fa

                Router Link States (Area 10)

Link ID         ADV Router      Age         Seq#       Checksum Link count
192.168.2.1     192.168.2.1     1047        0x80000002 0x009d71 1

                Summary Net Link States (Area 10)
Link ID         ADV Router      Age         Seq#       Checksum
192.168.2.0     192.168.2.1     1037        0x80000001 0x00abda
192.168.3.0     192.168.2.1     965         0x80000002 0x00a8da
192.168.4.0     192.168.2.1     781         0x80000003 0x00a5da
Router#
```

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```
Router#show ip interface fa0/0
FastEthernet0/0 is up, line protocol is up (connected)
  Internet address is 192.168.1.1/24
  Broadcast address is 255.255.255.255
  Address determined by setup command
  MTU is 1500 bytes
  Helper address is not set
  Directed broadcast forwarding is disabled
  Outgoing access list is not set
  Inbound  access list is not set
  Proxy ARP is enabled
  Security level is default
  Split horizon is enabled
  ICMP redirects are always sent
  ICMP unreachables are always sent
  ICMP mask replies are never sent
  IP fast switching is disabled
  IP fast switching on the same interface is disabled
  IP Flow switching is disabled
  IP Fast switching turbo vector
  IP multicast fast switching is disabled
  IP multicast distributed fast switching is disabled
  Router Discovery is disabled
  IP output packet accounting is disabled
  IP access violation accounting is disabled
  TCP/IP header compression is disabled
  RTP/IP header compression is disabled
  Probe proxy name replies are disabled
  Policy routing is disabled
  Network address translation is disabled
  BGP Policy Mapping is disabled
  Input features: MCI Check
  WCCP Redirect outbound is disabled
  WCCP Redirect inbound is disabled
  WCCP Redirect exclude is disabled

Router#
```

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```
Router# show ip ospf neighbor


Neighbor ID     Pri   State           Dead Time   Address         Interface
192.168.3.1       1   FULL/DR         00:00:39    192.168.2.2     FastEthernet0/1
Router#
```

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Ping command