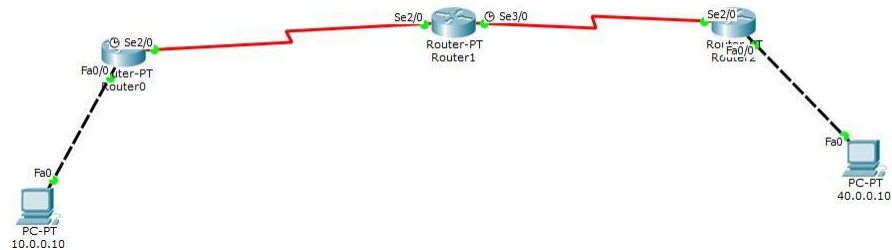


## CONFIGURING OSPF PROTOCOL:

### TOPOLOGY:



### SHOW IP ROUTE -R1

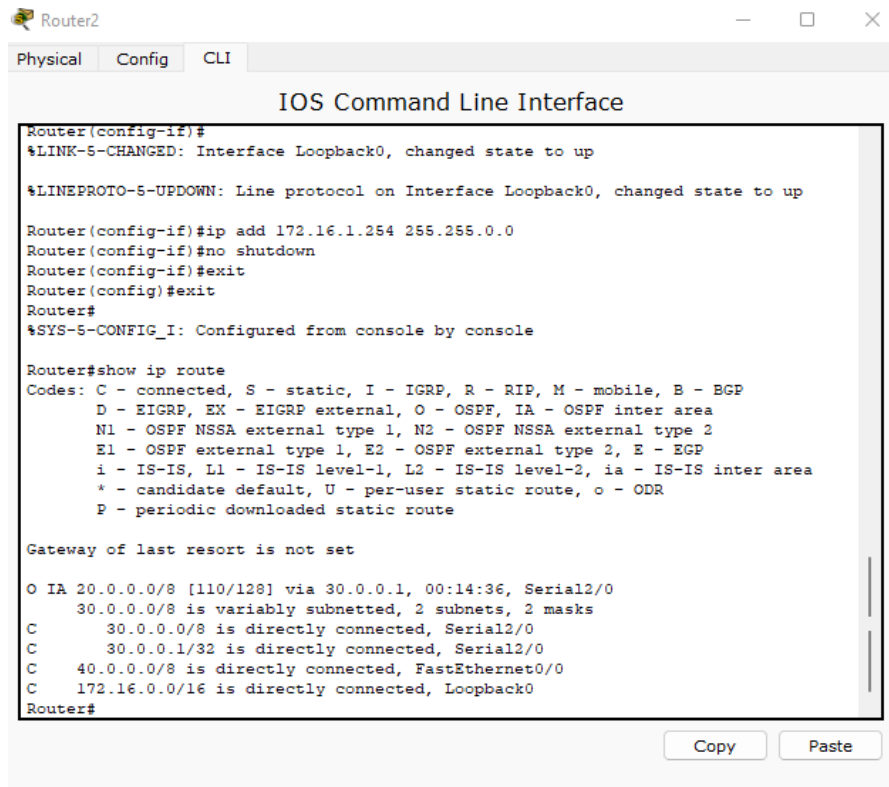
```
Router0
Physical Config CLI
IOS Command Line Interface
Router(config-router)#router-id 1.1.1.1
Router(config-router)#network 10.0.0.0 0.255.255.255 area 3
Router(config-router)#network 20.0.0.0 0.255.255.255 area 1
Router(config-router)#exit
Router(config)#
00:20:32: %OSPF-5-ADJCHG: Process 1, Nbr 2.2.2.2 on Serial2/0 from LOADING to FULL, Loading Done
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

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, FastEthernet0/0
    20.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C    20.0.0.0/8 is directly connected, Serial2/0
C    20.0.0.2/32 is directly connected, Serial2/0
O IA 30.0.0.0/8 [110/128] via 20.0.0.2, 00:02:04, Serial2/0
O IA 40.0.0.0/8 [110/129] via 20.0.0.2, 00:00:32, Serial2/0
Router#
```

### SHOW IP ROUTE-R3:



Router2

Physical Config CLI

### IOS Command Line Interface

```
Router(config-if)#
%LINK-5-CHANGED: Interface Loopback0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to up

Router(config-if)#ip add 172.16.1.254 255.255.0.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

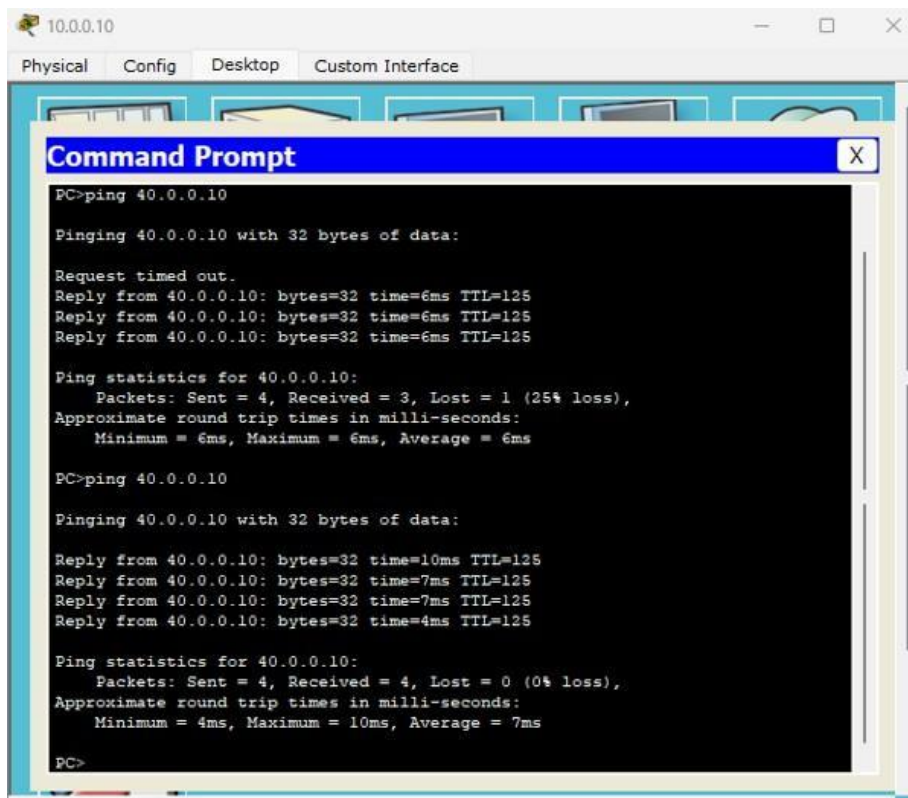
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       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

O IA 30.0.0.0/8 [110/128] via 30.0.0.1, 00:14:36, Serial2/0
     30.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C     30.0.0.0/8 is directly connected, Serial2/0
C     30.0.0.1/32 is directly connected, Serial2/0
C     40.0.0.0/8 is directly connected, FastEthernet0/0
C     172.16.0.0/16 is directly connected, Loopback0
Router#
```

Copy Paste

OUTPUT:



10.0.0.10

Physical Config Desktop Custom Interface

### Command Prompt

```
PC>ping 40.0.0.10

Pinging 40.0.0.10 with 32 bytes of data:

Request timed out.
Reply from 40.0.0.10: bytes=32 time=6ms TTL=125
Reply from 40.0.0.10: bytes=32 time=6ms TTL=125
Reply from 40.0.0.10: bytes=32 time=6ms TTL=125

Ping statistics for 40.0.0.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 6ms, Maximum = 6ms, Average = 6ms

PC>ping 40.0.0.10

Pinging 40.0.0.10 with 32 bytes of data:

Reply from 40.0.0.10: bytes=32 time=10ms TTL=125
Reply from 40.0.0.10: bytes=32 time=7ms TTL=125
Reply from 40.0.0.10: bytes=32 time=7ms TTL=125
Reply from 40.0.0.10: bytes=32 time=4ms TTL=125

Ping statistics for 40.0.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 4ms, Maximum = 10ms, Average = 7ms

PC>
```

Route.O

Physical Config

CLI

```
Router(config)# terminal
Enter configuration commands, one per line. End with CNTL-Z. Router (config)#router ospf 1
Router (config-router)#router-id 1.1.1.1
^Invalid input detected at '^' marker. Router (config-router)#router-id
1.1.1.1
Router(config-router)#0.0.0.0 0.255.255.255 area 3
^Invalid input detected at '^' marker.

Router(config-router)#network 10.0.0.0 0.255.255.255 area 3
Router(config-router)#network 20.0.0.0 0.255.255.255 area 1 Router (config-router)#exit
Router (config)#
06:34:12: %OSPF-5-ADJCHG: Process 1, Nbr 2.2.2.2 on Serial2/0 from LOADING to FULL, Loading Done Router (config)#interface loopback 0

Router (config-if)#
LINK-5-CHANGED: Interface Loopback0, changed state to up
LINKPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to up Router (config-if)#ip add 172.16.1.252
255.255.0.0
Router (config-if)#no shutdown Router (config-if)#exit
^
Router (config)#exit
SYS-5-CONFIG: I: Configured from console by console Router (config)#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, H - 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, FastEthernet0/0 20.0.0.0/8 is variably subnetted, 2 subnets, 2
 masks
C 20.0.0.0/8 is directly connected, Serial2/0 C
20.0.0.2/32 is directly connected, Serial2/0
0 IA 30.0.0.0/8 [110/128] via 20.0.0.2, 00:31:01, Serial2/0
0 IA 40.0.0.0/8 [110/129] via 20.0.0.2, 00:08:43, Serial2/0
C 172.16.0.0/16 is directly connected, Loopback0 Router (config)#exit terminal
^Invalid input detected at '^' marker. Router (config)#terminal
Enter configuration commands, one per line. End with CNTL-Z.
Router (config)#router ospf 1
Router (config-router)#area 1 virtual-link 2.2.2.2 Router (config-router)#
06:51:13: %OSPF-5-ADJCHG: Process 1, Nbr 2.2.2.2 on OSPF_VL0 from LOADING to FULL, Loading Done
```

```

Router: (config-if) #show ip interface
Enter configuration commands, one per line. End with CNTL/Z. Router: (config) #Crouter: ospf
Router: (config-router) router id 2.2.2.2
% Invalid input detected at '^' marker. Router: (config-router)
router id 2.2.2.2
Router: (config-router) #network 20.0.0.0 255.255.255.0 area 1
Router: (config-router) #network 20.0.0.0 255.255.255.0 area 1 00:34:08: %OSPF-6-ADJCHG:
Process 1, Nbr 1.1.1.1 on Serial0/ Router: (config-router) network 20.0.0.0 255.255.255.0 area 0
Router: (config-router) #exit
Router: (config) #
00:36:54: %OSPF-6-ADJCHG: Process 1, Nbr 3.3.3.3 on Serial0/0 from LOADING to FULL, Loading Done

Router: (config) #interface loopback 0
Router: (config-if) #
LINE>-S-CHANGE-ID: Interface Loopback0, changed state to up
LINEPROTO>-S-UPDOWN: Line protocol on Interface Loopback0, changed state to up Router: (config-if) #ip add
172.17.1.253 255.255.0.0
Router: (config-if) #no shutdown
% Invalid input detected at '^' marker. Router: (config-if) #no
shutdown
Router: (config-if) #exit Router:
(config)
00:48:10: %OSPF-4-ERRRCV: Received invalid packet: mismatch area ID, from backbone area 1000 be virtual-link but not found from 20.0.0.2, Serial2/0

Router: (config) #
00:49:21: %OSPF-4-ERRRCV: Received invalid packet: mismatch area ID, from backbone area 1000 be virtual-link but not found from 20.0.0.2, Serial2/0 00:49:31: %OSPF-4-ERRRCV: Received invalid packet:
mismatch area ID, from backbone area 1000 be virtual-link but not found from 20.0.0.2, Serial2/0
00:49:41: %OSPF-4-ERRRCV: Received invalid packet: mismatch area ID, from backbone area 1000 be virtual-link but not found from 20.0.0.2, Serial2/0
00:49:51: %OSPF-4-ERRRCV: Received invalid packet: mismatch area ID, from backbone area 1000 be virtual-link but not found from 20.0.0.2, Serial2/0

Router: (config) #Crouter: ospf
00:50:01: %OSPF-4-ERRRCV: Received invalid packet: mismatch area ID, from backbone area 1000 be virtual-link but not found from 20.0.0.2, Serial2/0

% Invalid input detected at '^' marker.

Router: (config) #Crouter: ospf
00:50:11: %OSPF-4-ERRRCV: Received invalid packet: mismatch area ID, from backbone area 1000 be virtual-link but not found from 20.0.0.2, Serial2/0

% Invalid input detected at '^' marker.

Router: (config) #router ospf 1 Router:
(config-router) #
00:50:21: %OSPF-4-ERRRCV: Received invalid packet: mismatch area ID, from backbone area 1000 be virtual-link but not found from 20.0.0.2, Serial2/0

Router: (config-router) #

```

```

% Invalid input detected at '^' marker.

Router: (config) #Crouter: ospf 1 Router:
(config-router) #
00:50:21: %OSPF-4-ERRRCV: Received invalid packet: mismatch area ID, from backbone area 1000 be virtual-link but not found from 20.0.0.2, Serial2/0

Router: (config-router) #
ID, from backbone area 1000 be virtual-link but not found from 20.0.0.2, Serial2/0 ID, from backbone area 1000 be virtual-link but not found from 20.0.0.2, Serial2/0
00:50:31: %OSPF-4-ERRRCV: Received invalid packet: mismatch area ID, from backbone area 1000 be virtual-link but not found from 20.0.0.2, Serial2/0
00:50:41: %OSPF-4-ERRRCV: Received invalid packet: mismatch
virtual-link 1 virtual-link but not found from 20.0.0.2, Serial2/0 ID, from backbone area 1000 be virtual-link but not found from 20.0.0.2, Serial2/0
00:50:51: %OSPF-4-ERRRCV: Received invalid packet: mismatch
1.1.1 0.2, Serial2/0
Router: (config-router) #area 1 virtual-link 1.1.1.1 Router:
(config-router) #exit
00:51:11: %OSPF-5-ADJCHG: Process 1, Nbr 1.1.1.1 on OSPF_VLO from LOADING to FULL, Loading Done

Router: (config) #C:

Route/c on0 is now available

Process RETURN to global start.

```

```

Roueer>
Roueer>enable
Roueer#configure terminal
Eneer configuraeion comm.ands, one per line. End wieh CNTL/2.
Roueer(config)#roueer-id 3.3.3.3

% Invalid inpue deeeceed ae •-• marker.

Roueer(config)#roueer ospf 1
Roueer(config-roueer)#roueer-id 3.3.3.3
Roueer(config-roueer)#neework 30.0.0.0 0.25S.25S.25S area 0
Roueer(config-roueer)#neework 30.0.0.0 0.25S.25S.25S area 0
00:3E:51: %OSPF-S-ADJCHG: Process 1, Nbr 2.2.2.2 on Serial2/
Roueer(config-roueer)#neework 40.0.0.0 0.25S.25S.25S area 2
Roueer(config-roueer)#exie
Roueer(config)#
Roueer(config)#ineerface loopback 0

Roueer(config-if)#
%LINK-S-CHANGED: Ineerface Loopback0, changed seae eo up
%LINEPROTO-S-UPDOWN: Line proeocol on Ineerface Loopback0, changed seae eo up
Roueer(config-if)#ip add 172.1E.1.2S4 25S.25S.0.0
Roueer(config-if)#no shuedown
Roueer(config-if)#exie
Roueer(config)#
Roueer(config)#rouer ospf 1

% Invalid inpue deeeceed ae •-• marker.

Roueer(config)#roueer ospf 1
Roueer(config-roueer)#exie
Roueer(config)#exie
Roueer#
%SYS-S-CONFIG_I: Configured from console by console


Roueer con0 is now available

```