

- PC1 IP: 192.168.1.1/24
- PC2 IP: 192.168.2.1/24

Cisco IOS Configuration

```
PC1 PC2 R1
R1 start
Mar 1 00:00:03.087: NLINK-S-CHANGED: Interface FastEthernet0/0, changed state
to administratively down
Mar 1 00:00:03.115: NLINK-S-CHANGED: Interface FastEthernet0/1, changed state
to administratively down
Mar 1 00:00:04.087: NLINKPROTO-S-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to down
Mar 1 00:00:04.115: NLINKPROTO-S-UPDOWN: Line protocol on Interface FastEthern
et0/1, changed state to down
R1#
R1conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface fastEthernet 0/0
% Invalid input detected at '^' marker.
R1(config)#interface fastEthernet 0/0
R1(config-if)#ip address 192.168.1.254 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#
Mar 1 00:04:17.027: NLINK-S-UPDOWN: Interface FastEthernet0/0, changed state to up
Mar 1 00:04:18.027: NLINKPROTO-S-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
R1(config-if)#interface fastEthernet 0/1
R1(config-if)#ip address 192.168.2.254 255.255.255.0
% 192.168.2.0 overlaps with FastEthernet0/0
R1(config-if)#ip address 192.168.2
% Incomplete command.
R1(config-if)#ip address 192.168.2.254 255.255.255.0
% Invalid input detected at '^' marker.
R1(config-if)#ip address 192.168.2.254 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#
Mar 1 00:06:28.983: NLINK-S-UPDOWN: Interface FastEthernet0/1, changed state to up
Mar 1 00:06:29.983: NLINKPROTO-S-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
R1(config-if)#
```

The router has been configured. Both FE 0/0 and FE0/1 has been configured to the respective Ip addresses and the “no shutdown” command has been used to activate the interface.

The router was configured as follows:

```
Router(config)# interface fastethernet0/0
Router(config-if)# ip address 192.168.1.254 255.255.255.0
Router(config-if)# no shutdown

Router(config)# interface fastethernet0/1
Router(config-if)# ip address 192.168.2.254 255.255.255.0
Router(config-if)# no shutdown
```

Verification

```
PC1 PC2 R1
Welcome to Virtual PC Simulator, version 0.6.2
Dedicated to Dailog.
Build time: Apr 10 2019 02:42:28
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Press '?' to get help.

Executing the startup file

PC1> ip config 192.168.1.1
Invalid address

PC1> ip 192.168.1.1
Checking for duplicate address...
PC1 : 192.168.1.1 255.255.255.0

PC1> ping 192.168.2.1
ip gateway found

PC1> ping 192.168.1.254
0 bytes from 192.168.1.254 icmp_seq=1 ttl=255 time=14.593 ms
0 bytes from 192.168.1.254 icmp_seq=2 ttl=255 time=15.027 ms
0 bytes from 192.168.1.254 icmp_seq=3 ttl=255 time=16.216 ms
0 bytes from 192.168.1.254 icmp_seq=4 ttl=255 time=16.084 ms
0 bytes from 192.168.1.254 icmp_seq=5 ttl=255 time=15.598 ms
PC1>
```

```
PC1 PC2 R1
Welcome to Virtual PC Simulator, version 0.6.2
Dedicated to Dailog.
Build time: Apr 10 2019 02:42:28
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Press '?' to get help.

Executing the startup file

PC2> ip 192.168.2.1
Checking for duplicate address...
PC2 : 192.168.2.1 255.255.255.0

PC2> ping 192.168.2.254
0 bytes from 192.168.2.254 icmp_seq=1 ttl=255 time=16.306 ms
0 bytes from 192.168.2.254 icmp_seq=2 ttl=255 time=15.742 ms
0 bytes from 192.168.2.254 icmp_seq=3 ttl=255 time=15.648 ms
0 bytes from 192.168.2.254 icmp_seq=4 ttl=255 time=15.795 ms
0 bytes from 192.168.2.254 icmp_seq=5 ttl=255 time=16.124 ms
PC2>
```

Verification: Ping FE0/0 and FE0/1

Result: Successful

Reason: PC1 and FE0/0 are on the same network (192.168.1.0/24). Similarly, PC2 and FE0/1 share the 192.168.2.0/24 network. Layer-3 connectivity exists within each subnet.

[illegible]

Verification: Ping FE0/1 from PC1

Result: Failed

Reason: Different subnets (192.168.1.0/24 ↔ 192.168.2.0/24) with no routing configured; packets are dropped due to lack of a gateway.

[illegible][illegible]

Verification: Ping PC2 from PC1

Result: Failed initially.

Cause: No Layer-3 path between subnets.

Remediation

Enabled routing on the router using:

```
Router(config)# ip routing
```

After enabling IP routing, PC1 → PC2 ping succeeds, confirming that the router is correctly forwarding packets between both networks.

