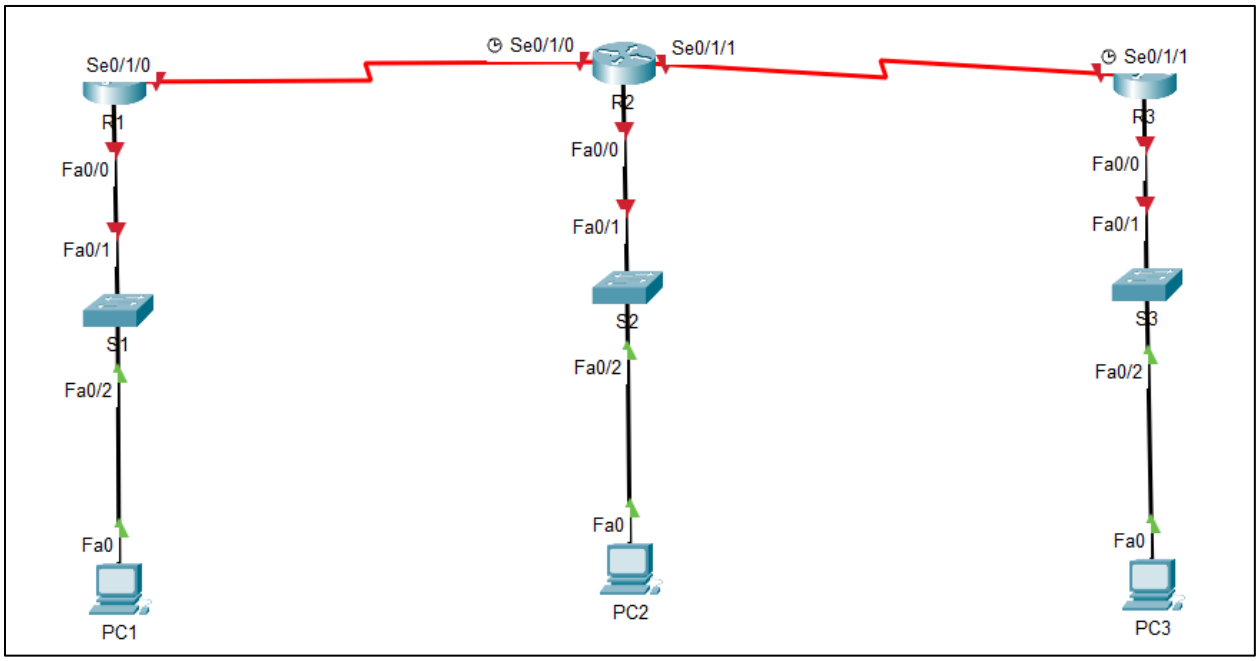
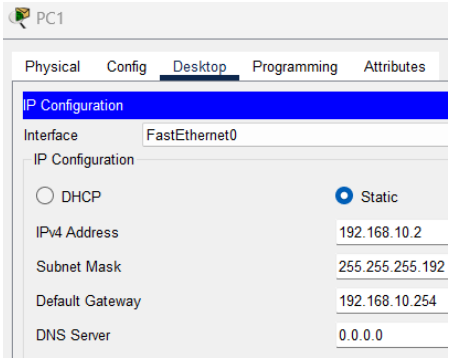
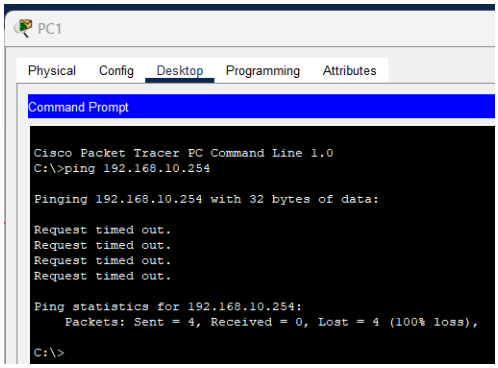
Lab 2: IP Address Subnetting



Network Area	Device Name	IP Address	Subnet Mask
LAN 1	R1	192.168.10.1	255.255.255.192
	PC1	192.168.10.2	255.255.255.192
LAN 2	R2	192.168.10.65	255.255.255.224
	PC2	192.168.10.66	255.255.255.224
LAN 3	R3	192.168.10.97	255.255.255.252
	PC3	192.168.10.98	255.255.255.252
WAN 1	R1	192.168.10.101	255.255.255.252
	R2	192.168.10.102	255.255.255.252
WAN 2	R3	192.168.10.105	255.255.255.252
	R2	192.168.10.106	255.255.255.252

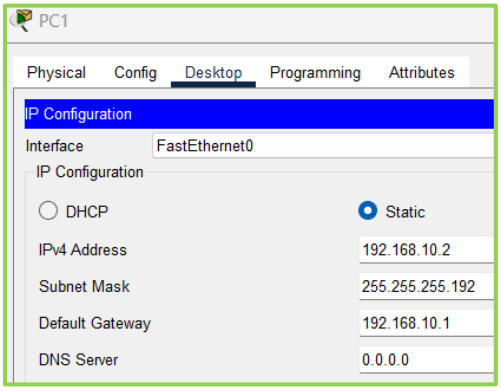
First, we tested to write the LAN 1 Gateway out of subnet range and tried to ping the IP address from PC1. The settings were as follows:





The result of ping is request timed out, because the PC1 and R1 were identified as if they were in two separate networks.

We then re-configured the IP address of R1 in both devices (PC1 & R1) to the make the IP within the same subnet of PC1.



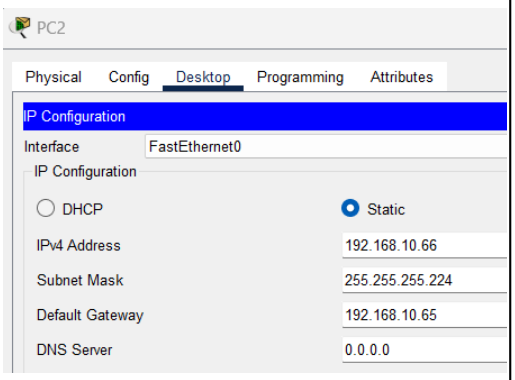

```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R1
R1(config)#interface Fa0/0
R1(config-if)#ip address 192.168.10.254 255.255.255.192
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

R1(config-if)#exit
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#copy run
R1#copy running-config st
R1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R1#
```

```
R1#config t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#interface Fa0/0
R1(config-if)#no ip address 192.168.10.254 255.255.255.192
R1(config-if)#ip address 192.168.10.1 255.255.255.192
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console
copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R1#
```

Later we run ping command to from R1 to PC1, and the rate was successful.

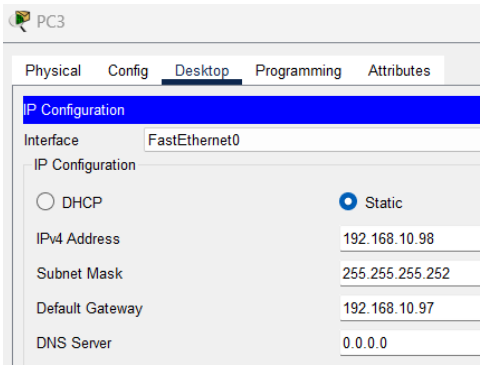
```
R1#ping 192.168.10.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.10.2, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 0/0/1 ms

R1#
```

LAN 2 Configuration:




```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname
% Incomplete command.
Router(config)#hostname R2
R2(config)#interface Fa0/0
R2(config-if)#ip address 192.168.10.65 255.255.255.224
R2(config-if)#no shutdown

R2(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

R2(config-if)#exit
R2(config)#exit
R2#
%SYS-5-CONFIG_I: Configured from console by console

R2#copy r
R2#copy running-config st
R2#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R2#
```

LAN 3 Configuration:




```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#
Router(config)#hostname R3
R3(config)#interface Fa0/0
R3(config-if)#ip address 192.168.10.97 255.255.255.252
R3(config-if)#no shutdown

R3(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

R3(config-if)#exit
R3(config)#exit
R3#
%SYS-5-CONFIG_I: Configured from console by console
copy run
R3#copy running-config start
Destination filename [startup-config]?
Building configuration...
[OK]
R3#
```

WAN 1 Configuration:

R1 Configuration:

```
R1(config)#interface s0/1/0
R1(config-if)#ip address 192.168.10.101 255.255.255.252
R1(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial0/1/0, changed state to down
R1(config-if)#
R1(config-if)#exit
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#copy run
R1#copy running-config s
R1#copy running-config st
R1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
```

R2 Configuration:

```
R2(config)#interface s0/1/0
R2(config-if)#ip address 192.168.10.102 255.255.255.252
R2(config-if)#no shutdown

R2(config-if)#
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up

R2(config-if)#exit
R2(config)#exit
```

WAN 2 Configuration:

R2 Configuration:

```
R2(config)#
R2(config)#interface s0/1/1
R2(config-if)#ip address 192.168.10.106 255.255.255.252
R2(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial0/1/1, changed state to down
R2(config-if)#
R2(config-if)#exit
R2(config)#exit
R2#
%SYS-5-CONFIG_I: Configured from console by console

R2#copy run
R2#copy running-config st
R2#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R2#
```

R3 Configuration:

```
R3(config)#interface s0/1/1
R3(config-if)#ip address 192.168.10.105 255.255.255.252
R3(config-if)#no shutdown

R3(config-if)#
%LINK-5-CHANGED: Interface Serial0/1/1, changed state to up

R3(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/1, changed state to up

R3(config-if)#exit
R3(config)#exit
R3#
%SYS-5-CONFIG_I: Configured from console by console
copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
R3#
```