

資通作業3

1.screenshot of " Getting Started with Cisco Packet Tracer"

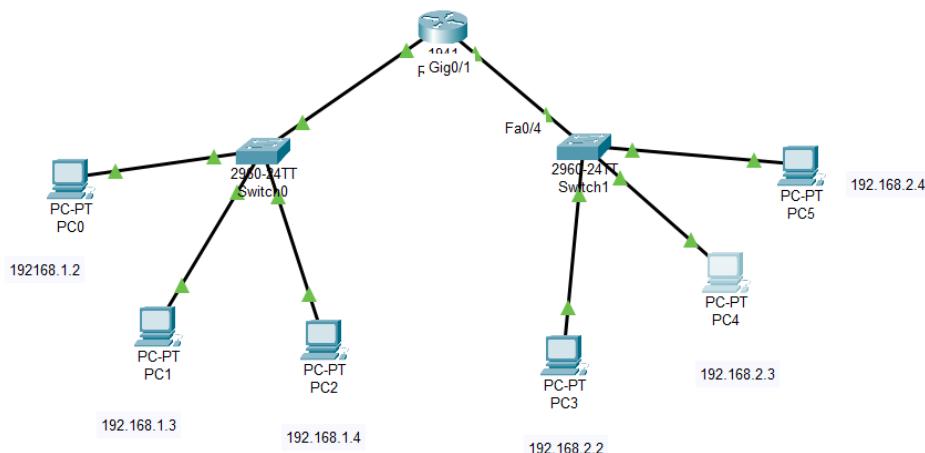
葉珍珍:

The image shows two identical screenshots of the Cisco Packet Tracer course completion interface. Both screens display a green progress bar at 100% completion. A large green arc with the text "100%" is centered on the screen. Below the arc, the message "You've scored 100%." is displayed, followed by "Congratulations, you have passed the assessment." On the right side of the top screenshot, there is a summary section with a list of completed learning objectives:

- Investigate Devices in a Wiring Closet
- Connect End Devices to Networking Devices
- Install a Backup Router
- Configure a Hostname

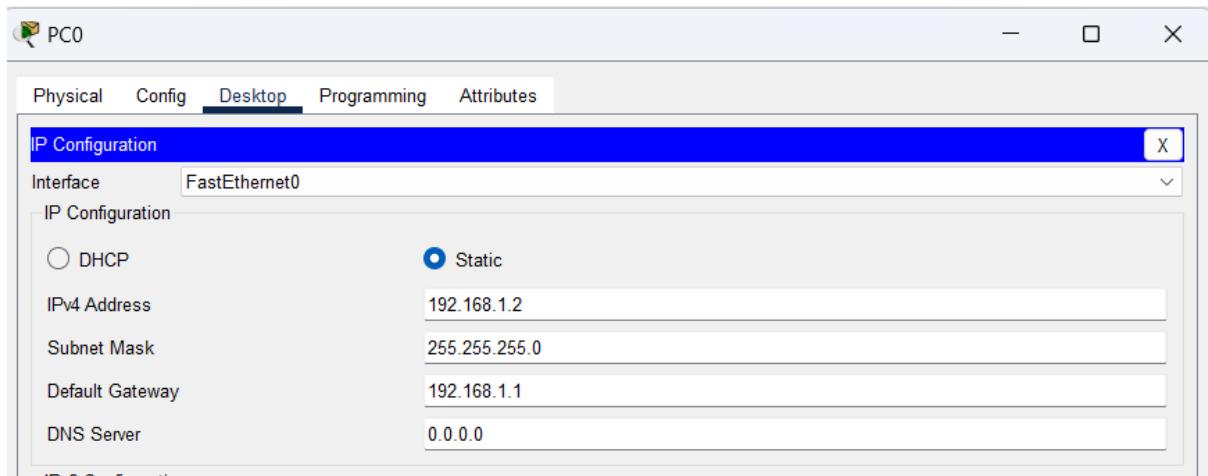
Below this is a "Reflection Question Answers" section with a question about connecting devices and a possible answer about USB console cables. At the bottom right of the top screenshot, it says "Completion: 100%" and has "Back" and "Next" buttons.

2-A:We have a network with one router and two sub-networks, each subnetwork uses a LAN switch to connect 3 PCs.

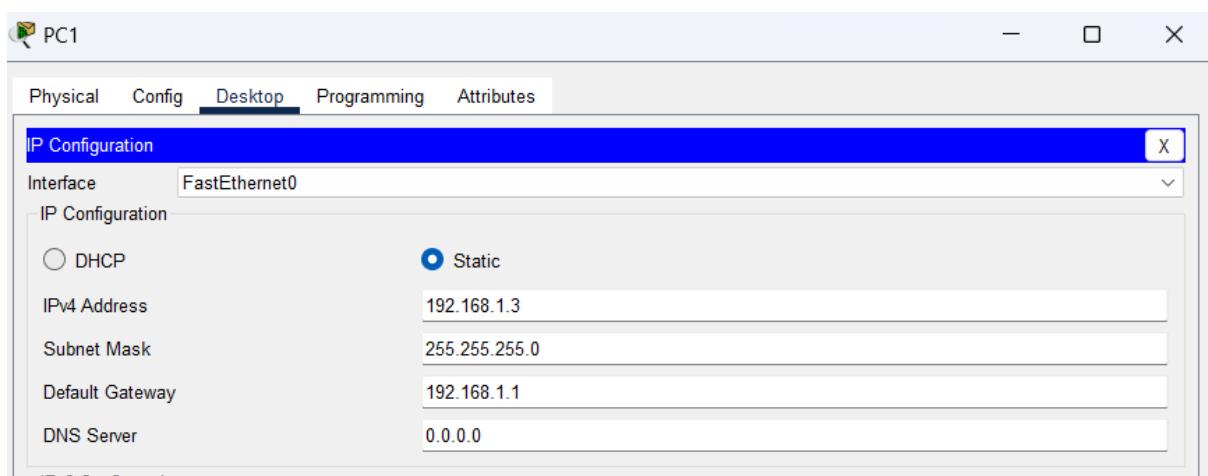


2-B:each ip address:

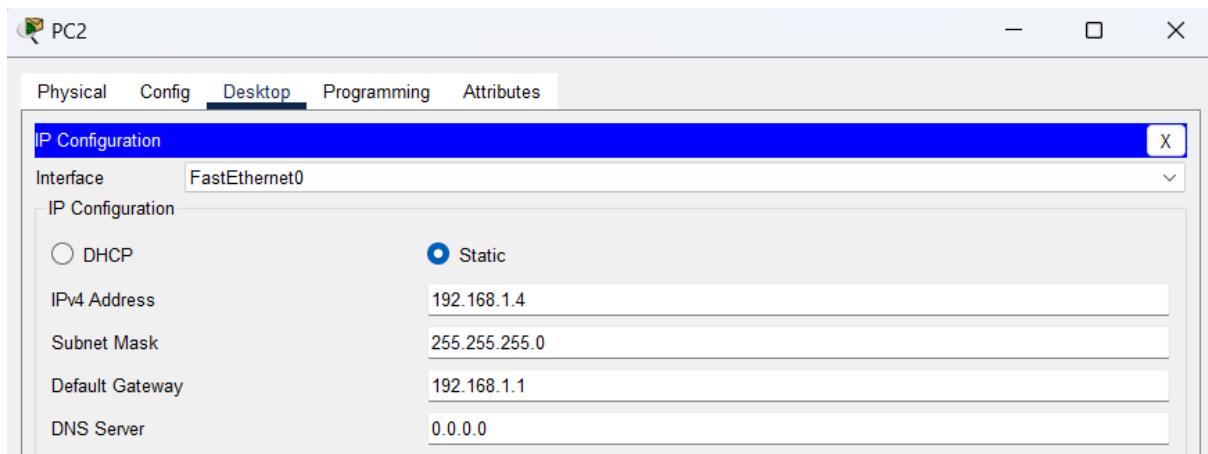
PC0:



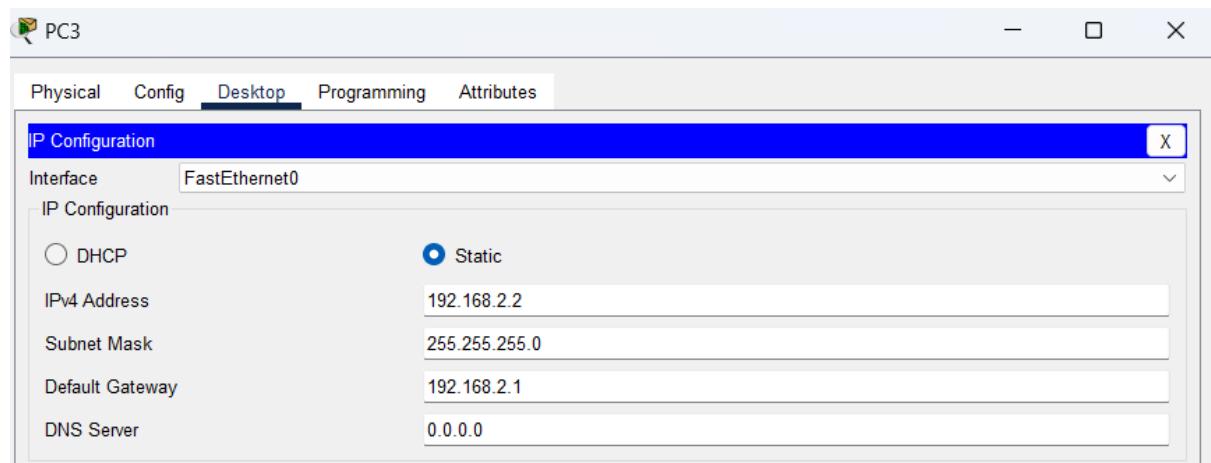
PC1:



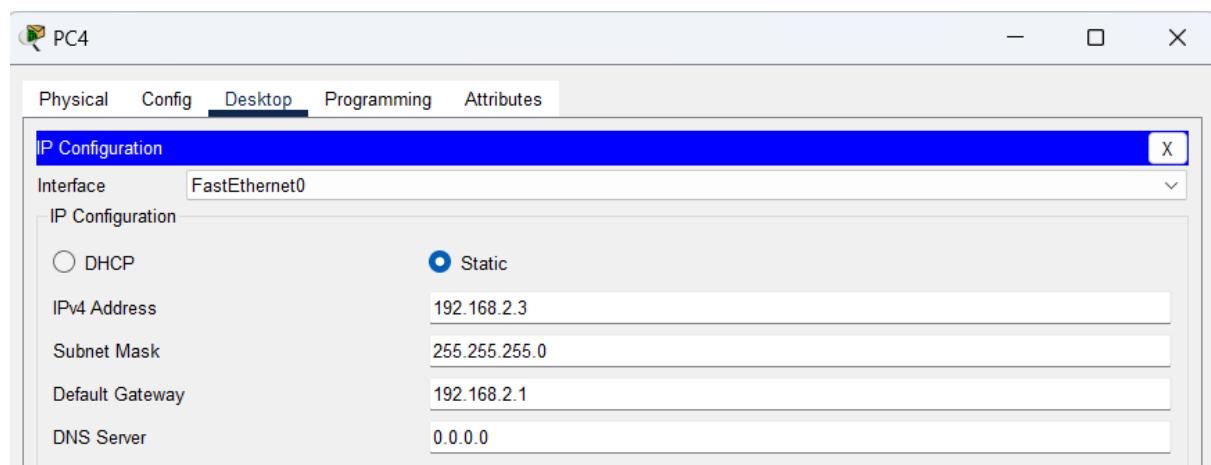
PC2:



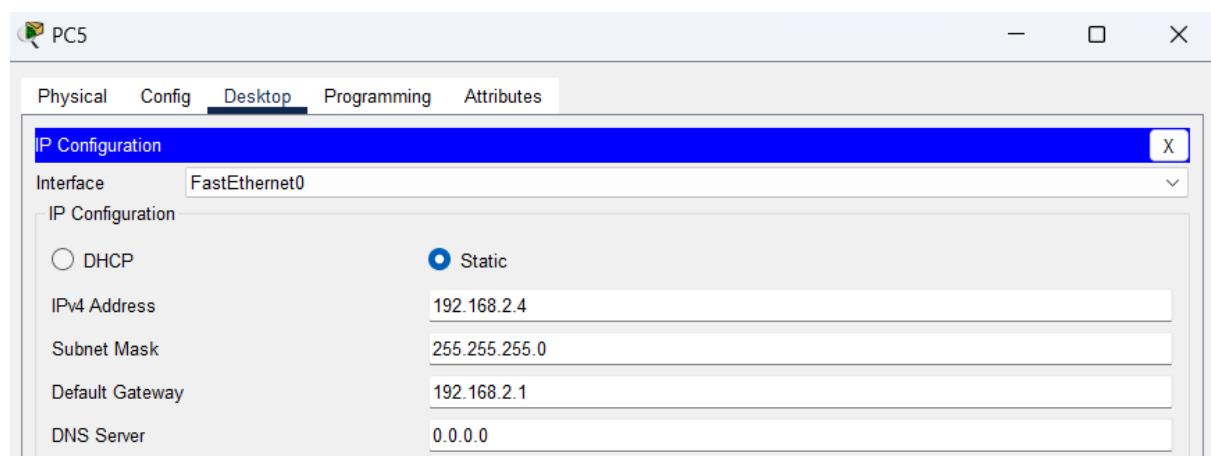
PC3:



PC4:

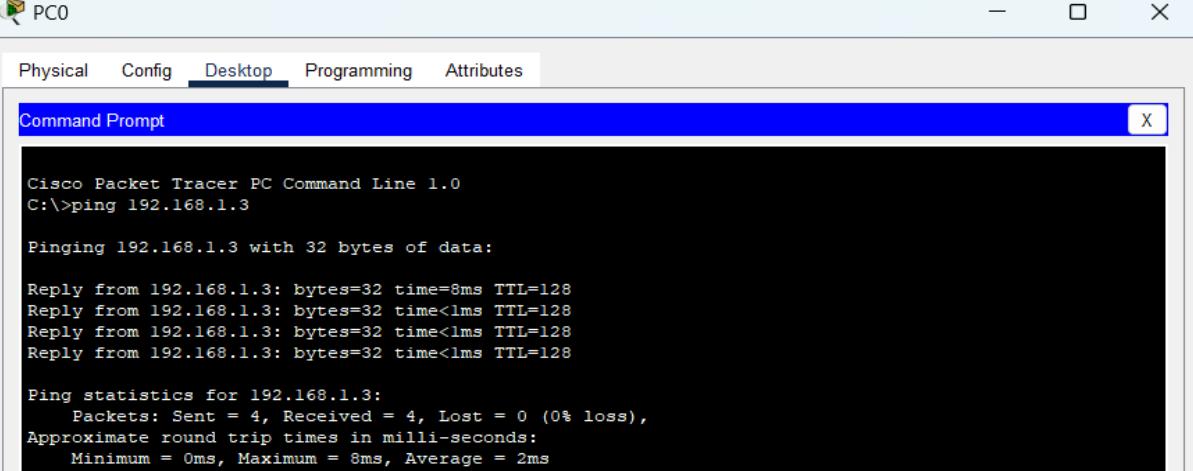


PC5:



2-C: Use ping to check your setting.

同個subnet: PC0(192.168.1.2) ping PC1(192.168.1.3):



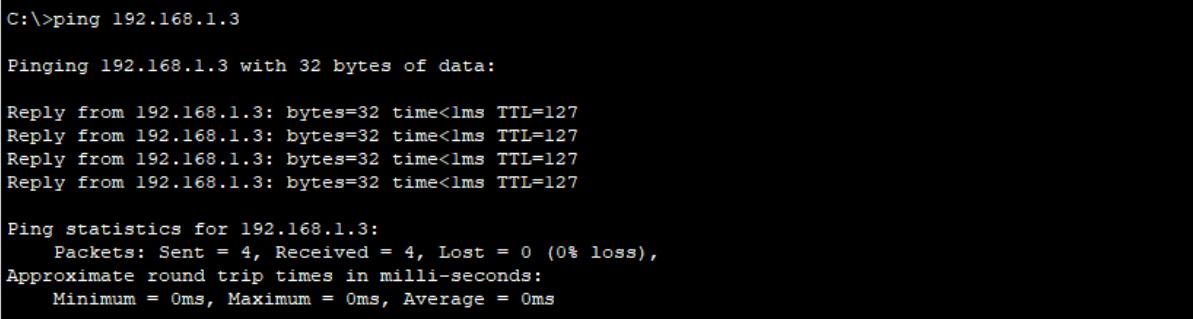
```
Cisco Packet Tracer PC Command Line 1.0
C:>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time=8ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 8ms, Average = 2ms
```

不同subnet: PC4(192.168.2.3) ping PC1(192.168.1.3):



```
C:>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

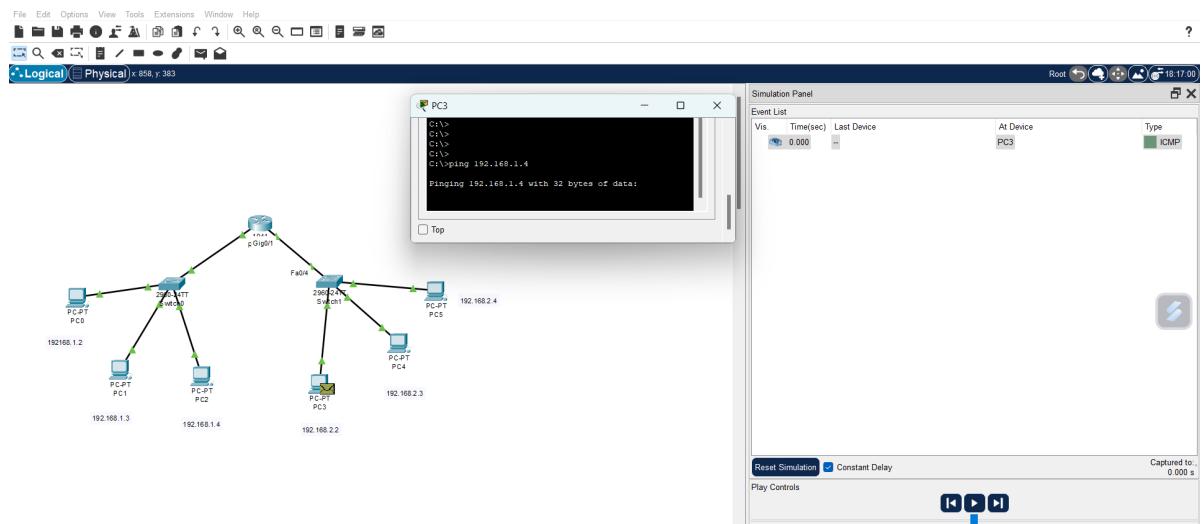
Reply from 192.168.1.3: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

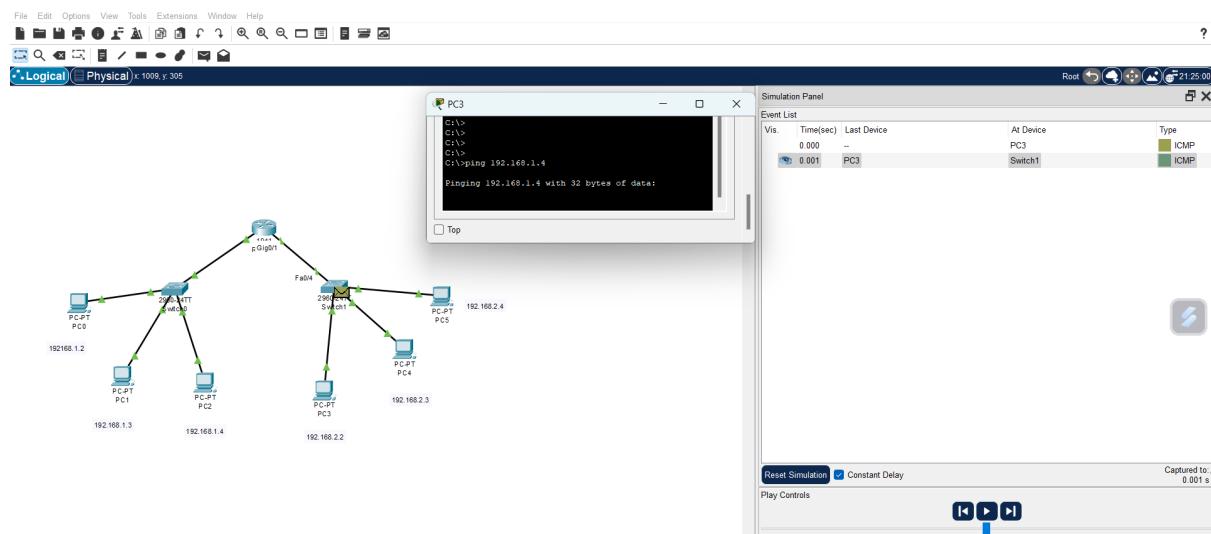
2-D: Cisco packet tracer

PC3(192.168.2.2) ping PC2(192.168.1.4):

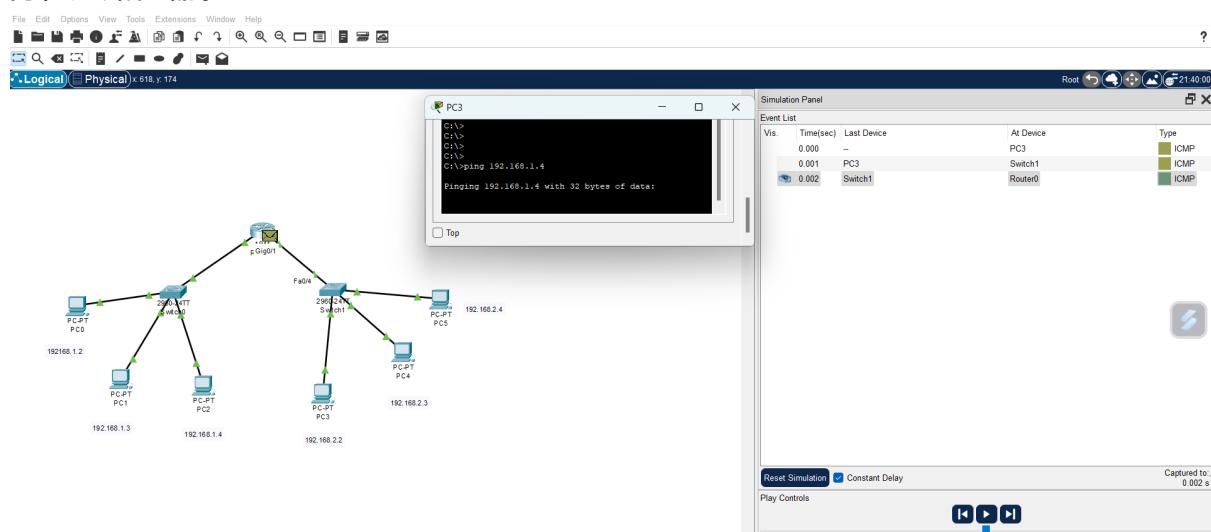
一開始ping時，會有一個封包在PC3產生。



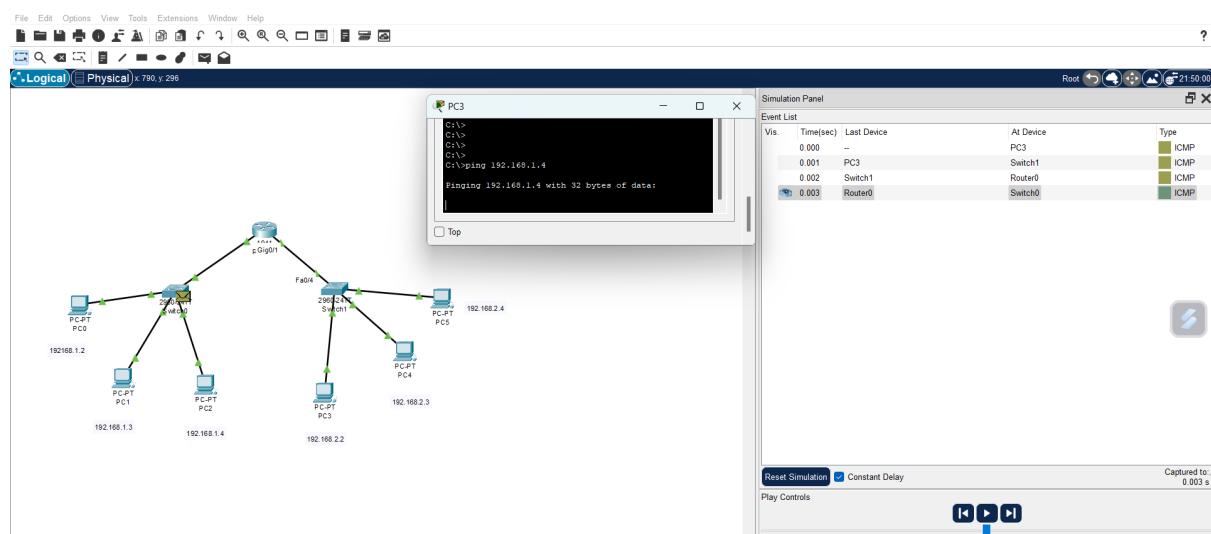
之後封包會經過此子網的switch。



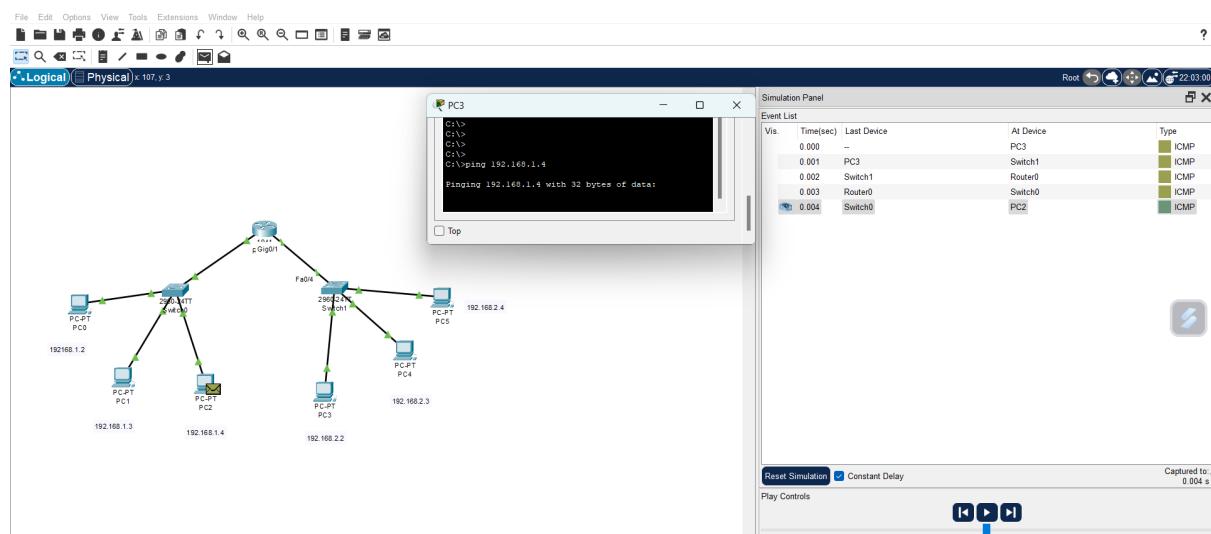
再經過路由器。



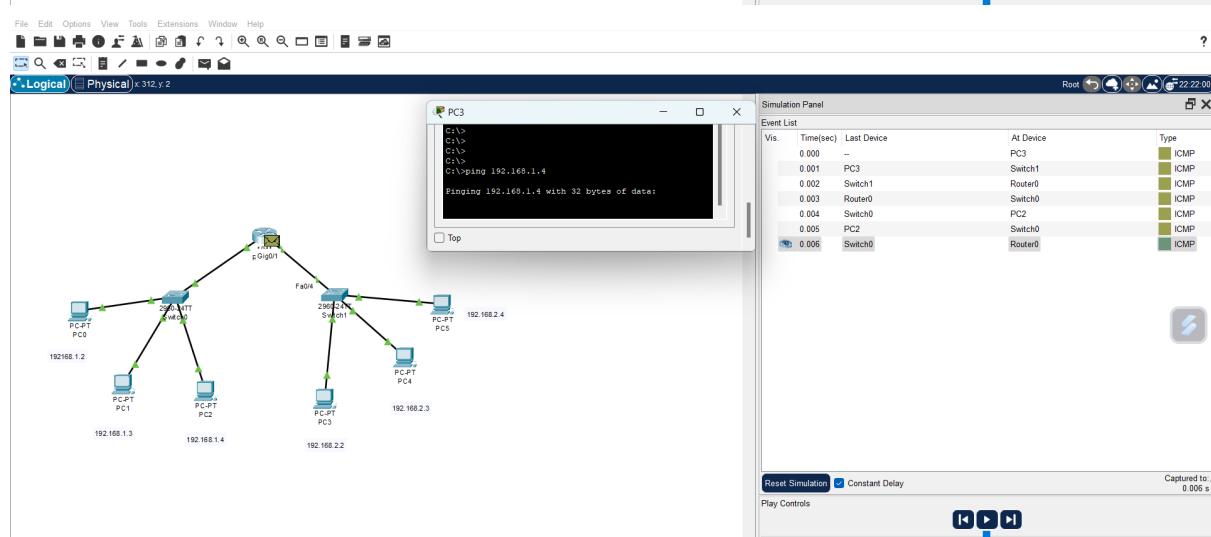
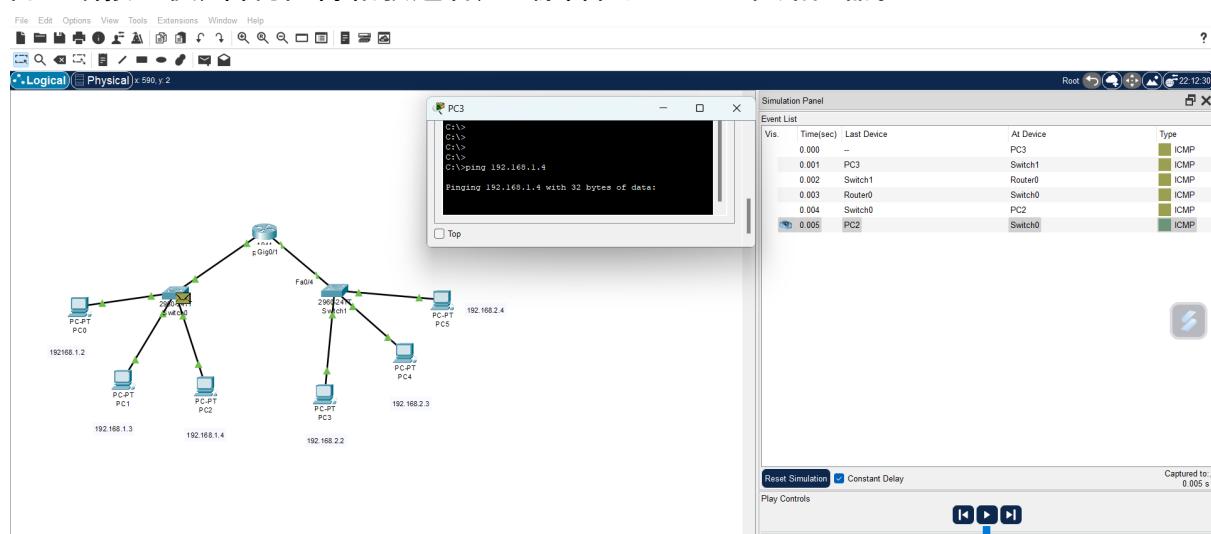
傳送到另一個子網。

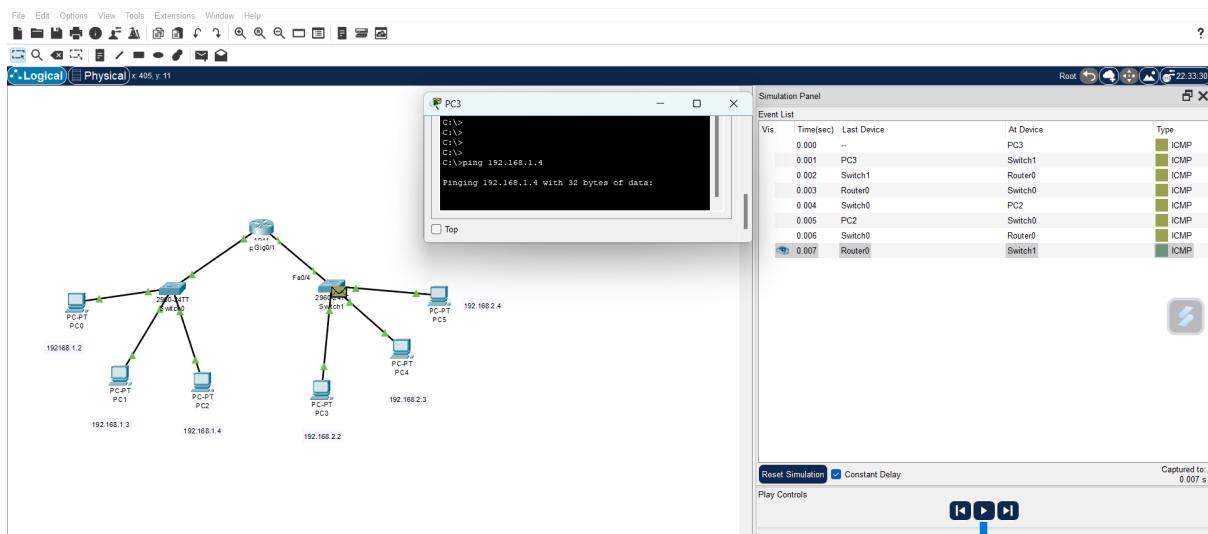


傳送到目的端。

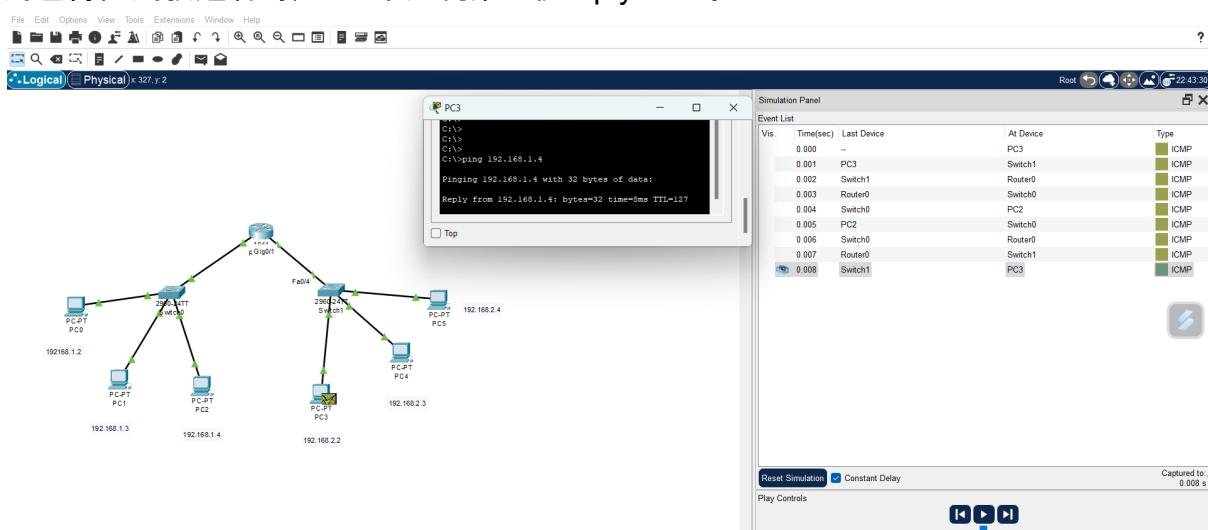


目的端接收後，會再回傳給發送者，一樣會經過switch和路由器。

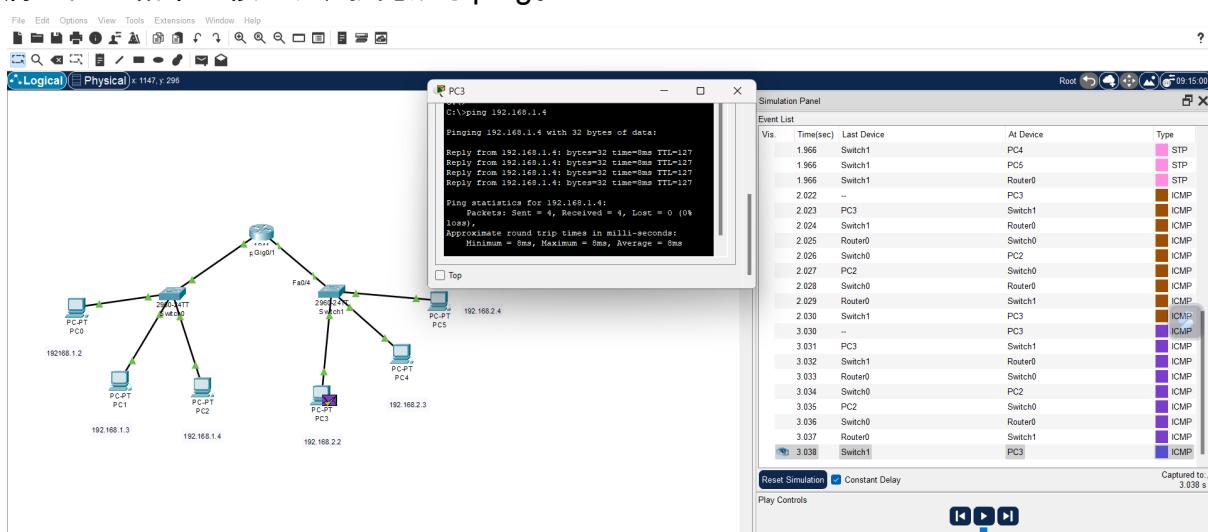




封包傳回到發送者時, cmd中出現第一個reply from。

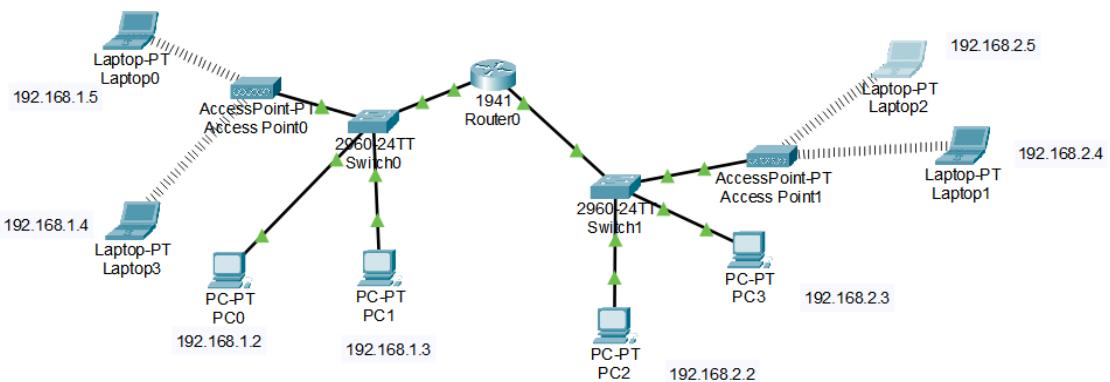


將上面的結果重複四次, 就完成了ping。



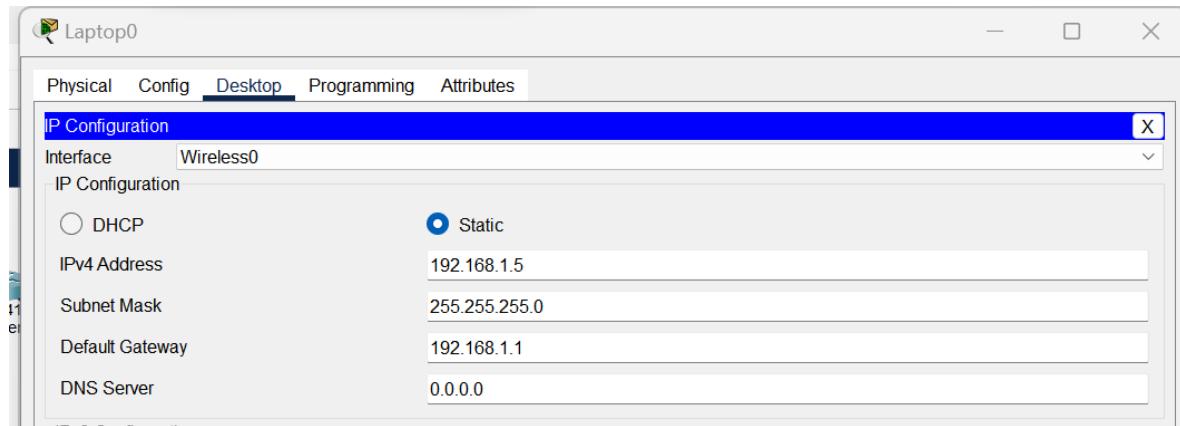
3-A:

a network with one router and two sub-networks, each subnetwork uses a LAN switch to connect 2 PCs and one WiFi Access Point. Each subnetwork also has two laptops connecting to the WiFi Access Point.

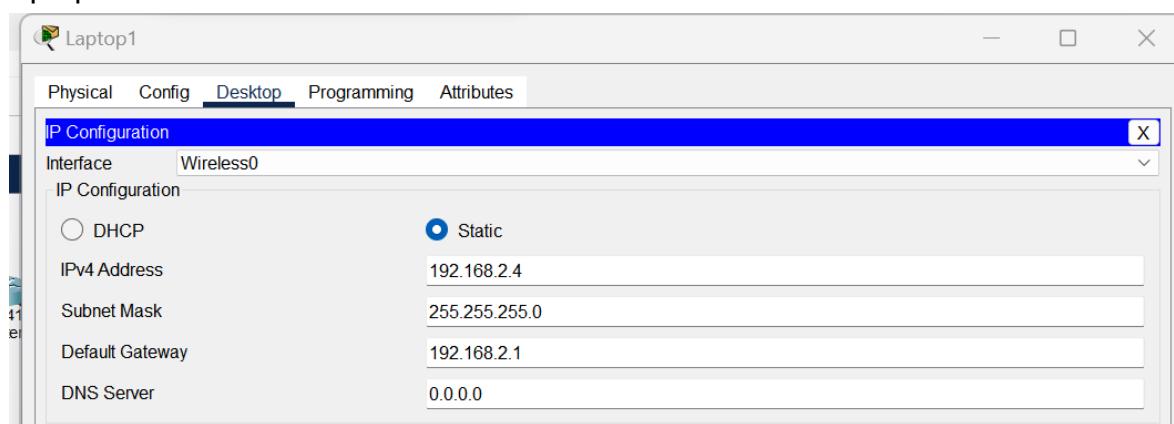


3-B:each ip address:

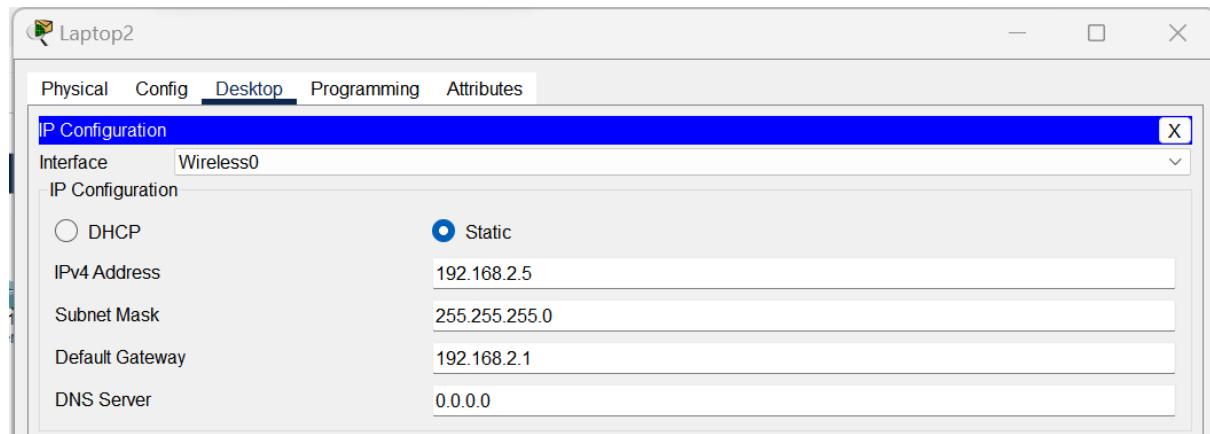
laptop0:



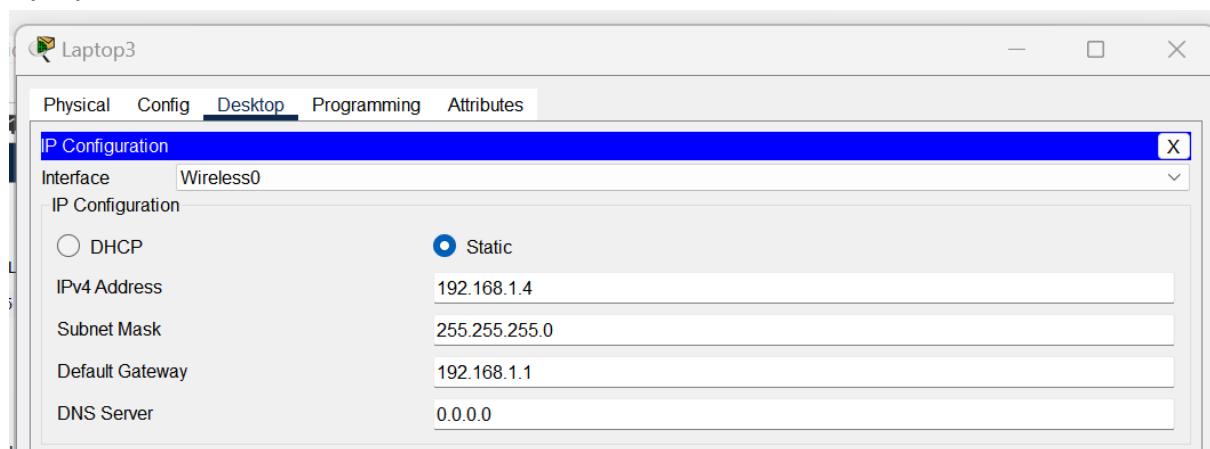
laptop1:



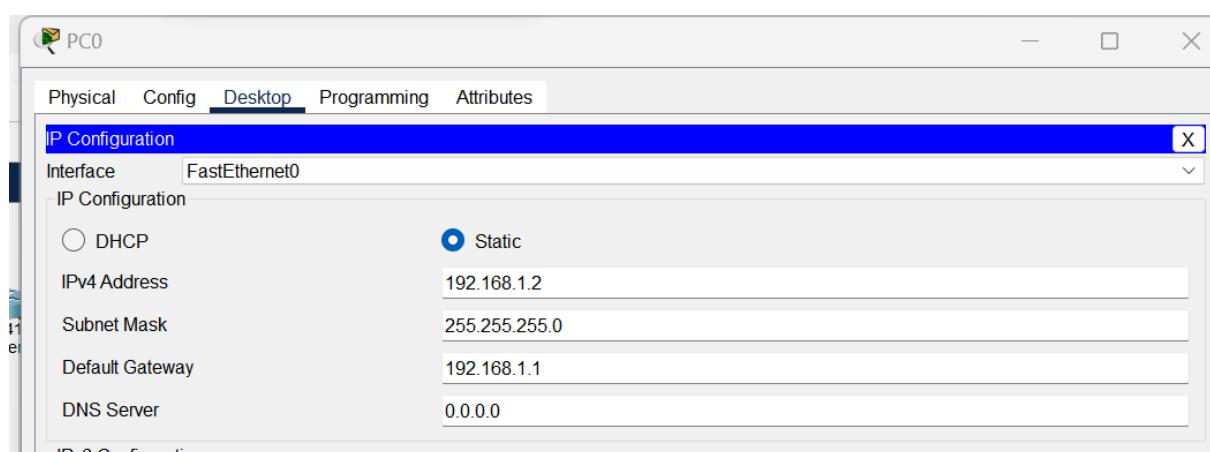
laptop2:



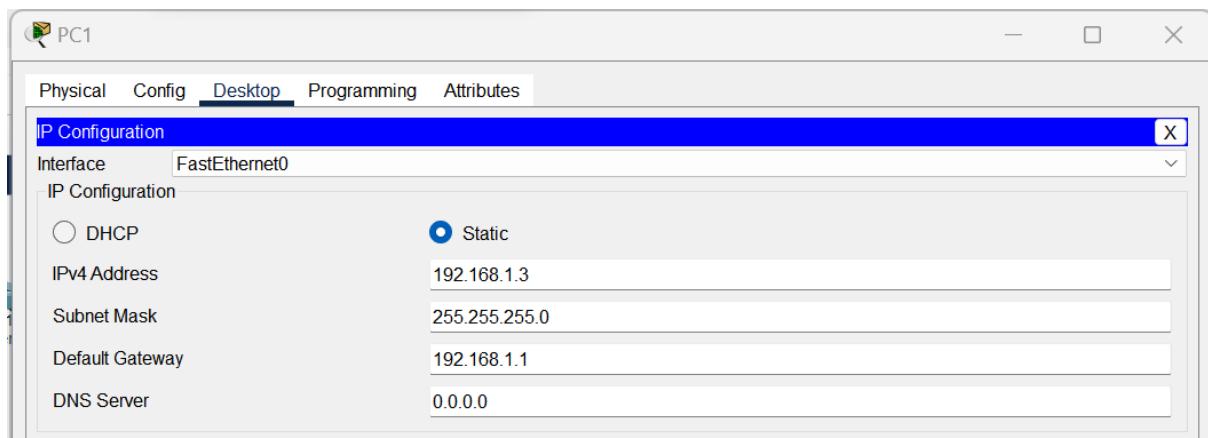
laptop3:



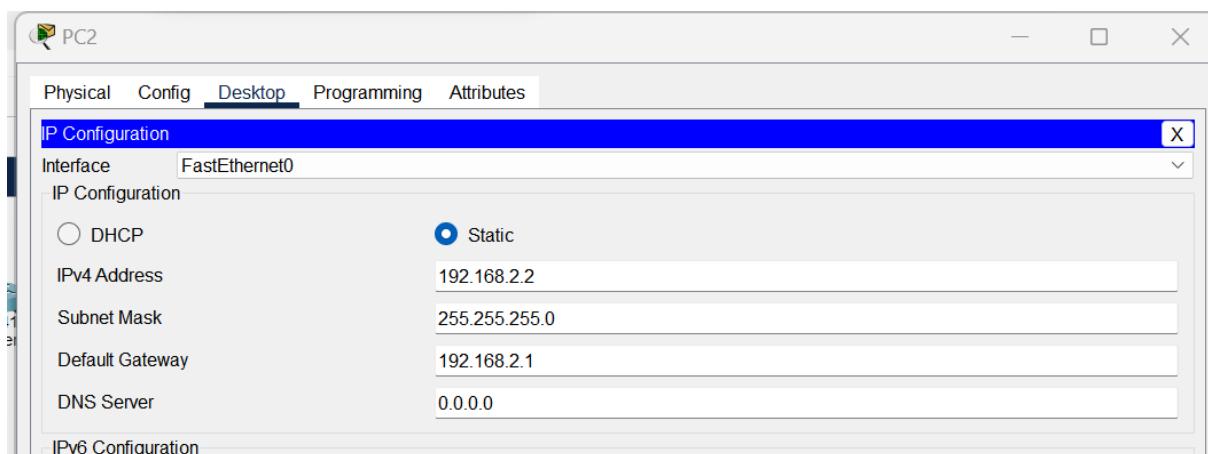
PC0:



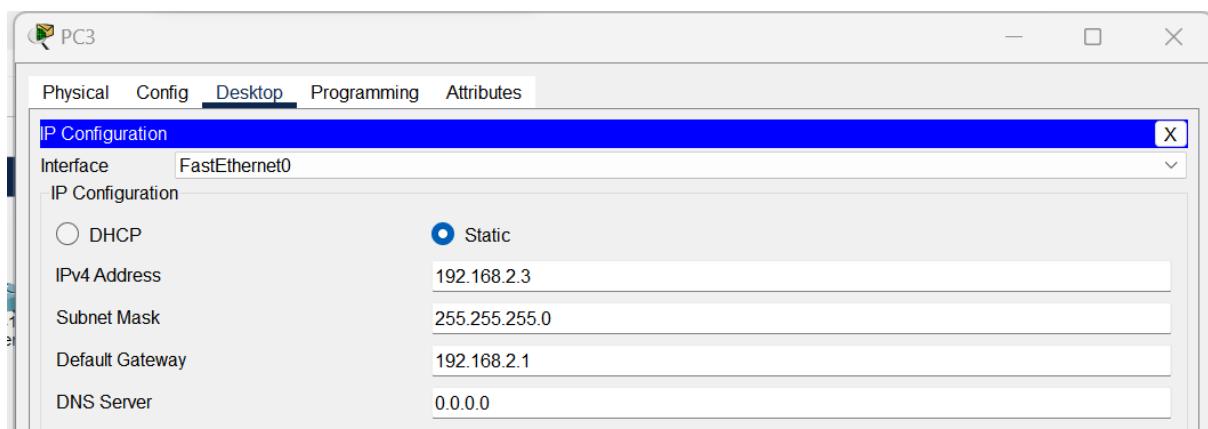
PC1:



PC2:



PC3:



3-C:Ping

同個subnet:

PC1(192.168.1.3) ping laptop3(192.168.1.4):

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.4

Pinging 192.168.1.4 with 32 bytes of data:

Reply from 192.168.1.4: bytes=32 time=20ms TTL=128
Reply from 192.168.1.4: bytes=32 time=10ms TTL=128
Reply from 192.168.1.4: bytes=32 time=8ms TTL=128
Reply from 192.168.1.4: bytes=32 time=8ms TTL=128

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
```

不同subnet:

laptop 3(192.168.1.4) ping laptop 2(192.168.2.5)

```
Laptop3

Physical Config Desktop Programming Attributes
Command Prompt
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=14ms TTL=127
Reply from 192.168.2.3: bytes=32 time=15ms TTL=127
Reply from 192.168.2.3: bytes=32 time=18ms TTL=127
Reply from 192.168.2.3: bytes=32 time=18ms TTL=127

Ping statistics for 192.168.2.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 14ms, Maximum = 18ms, Average = 16ms

C:\>ping 192.168.2.5

Pinging 192.168.2.5 with 32 bytes of data:

Reply from 192.168.2.5: bytes=32 time=25ms TTL=127
Reply from 192.168.2.5: bytes=32 time=19ms TTL=127
Reply from 192.168.2.5: bytes=32 time=21ms TTL=127
Reply from 192.168.2.5: bytes=32 time=14ms TTL=127

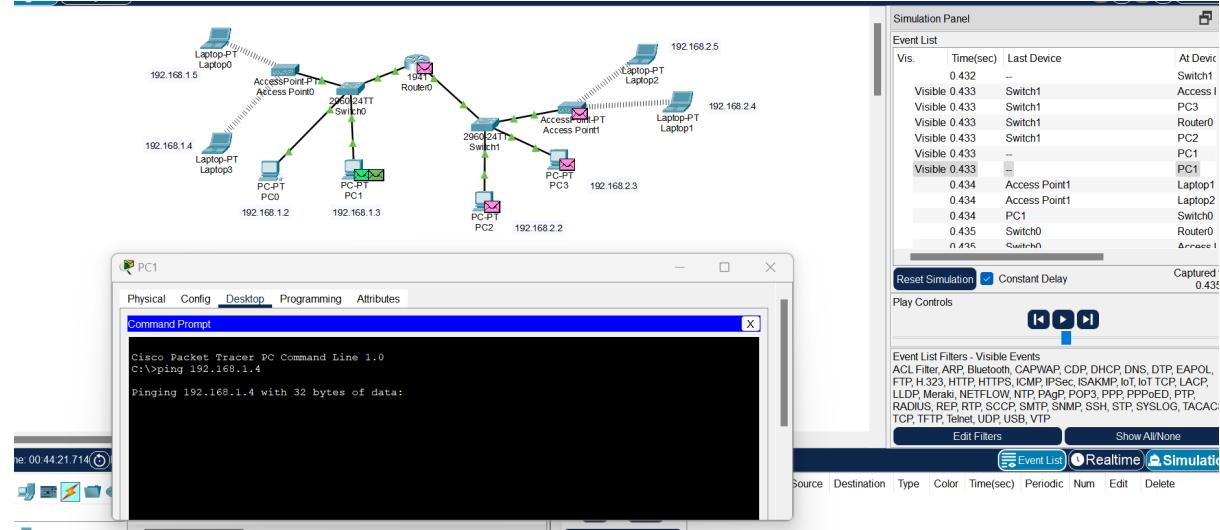
Ping statistics for 192.168.2.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 14ms, Maximum = 25ms, Average = 19ms

C:\>
```

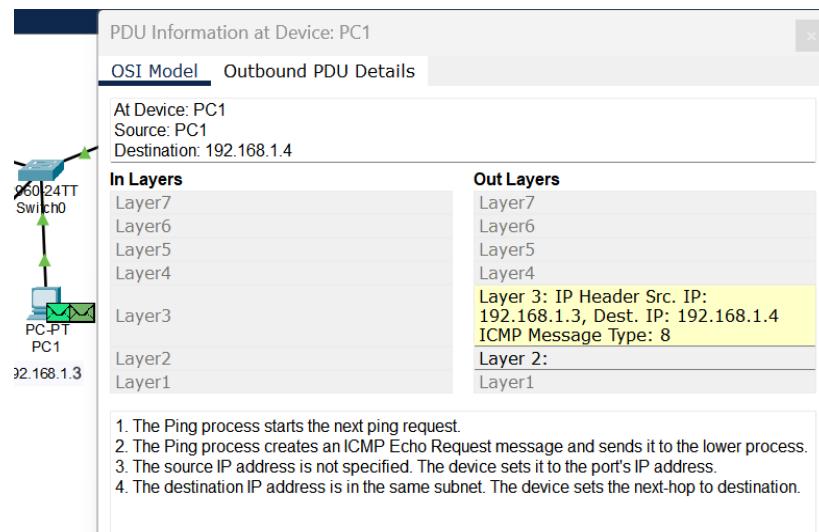
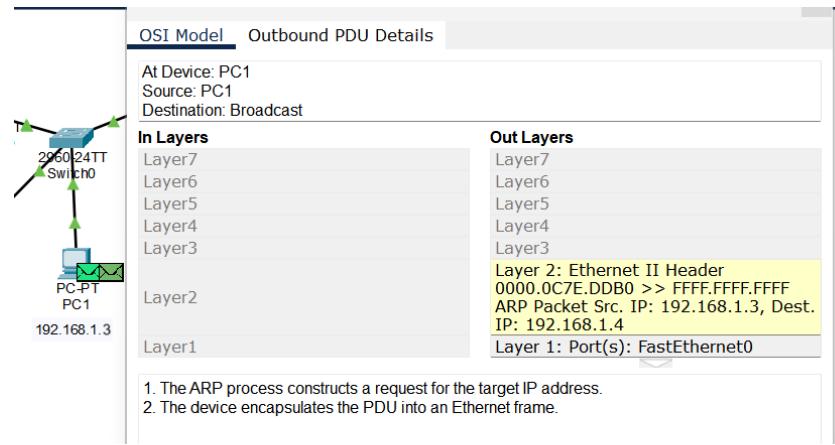
Top

3-D:Cisco packet tracer

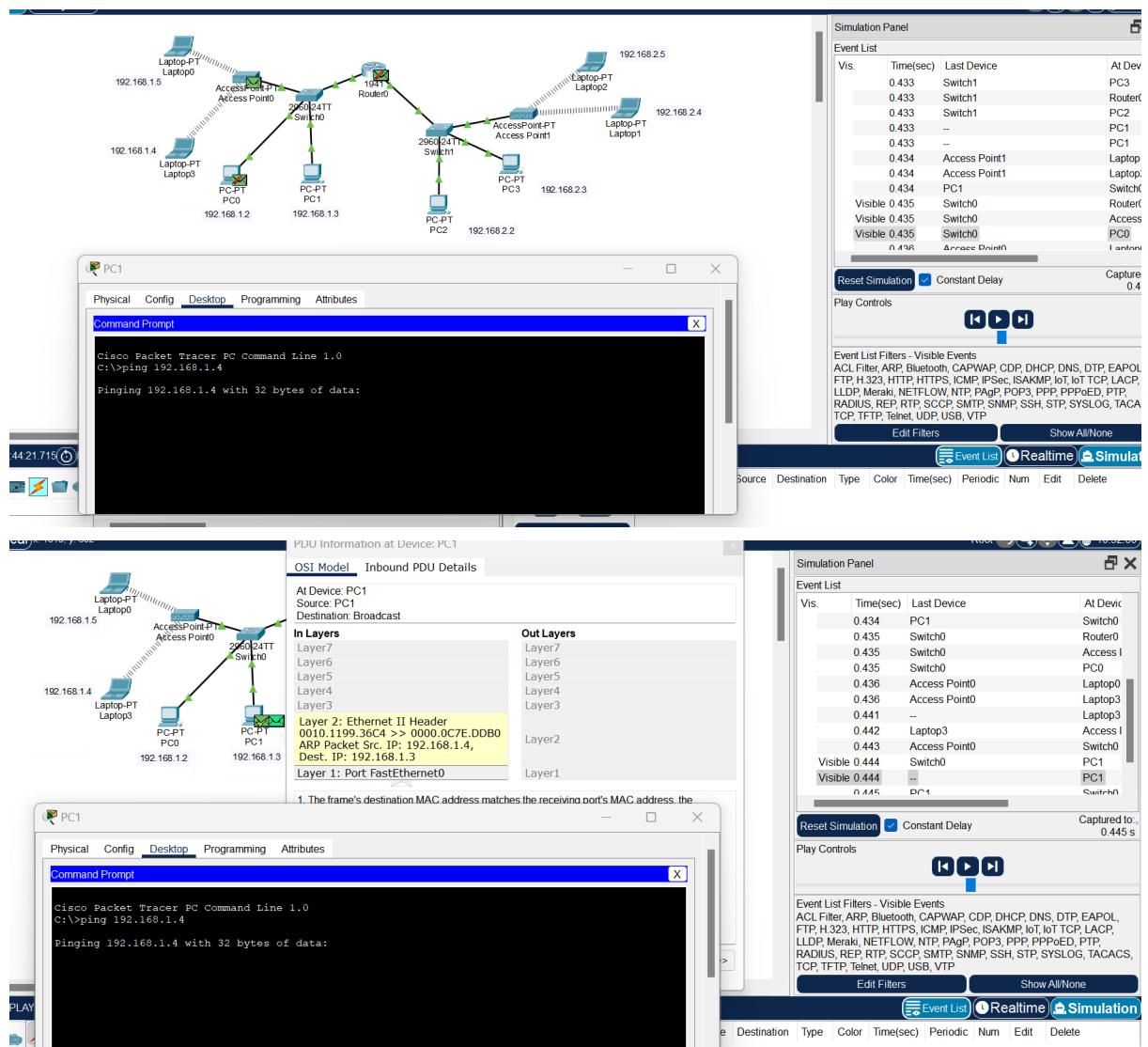
PC1(192.168.1.3) ping laptop3(192.168.1.4):
當開始ping laptop 3時:



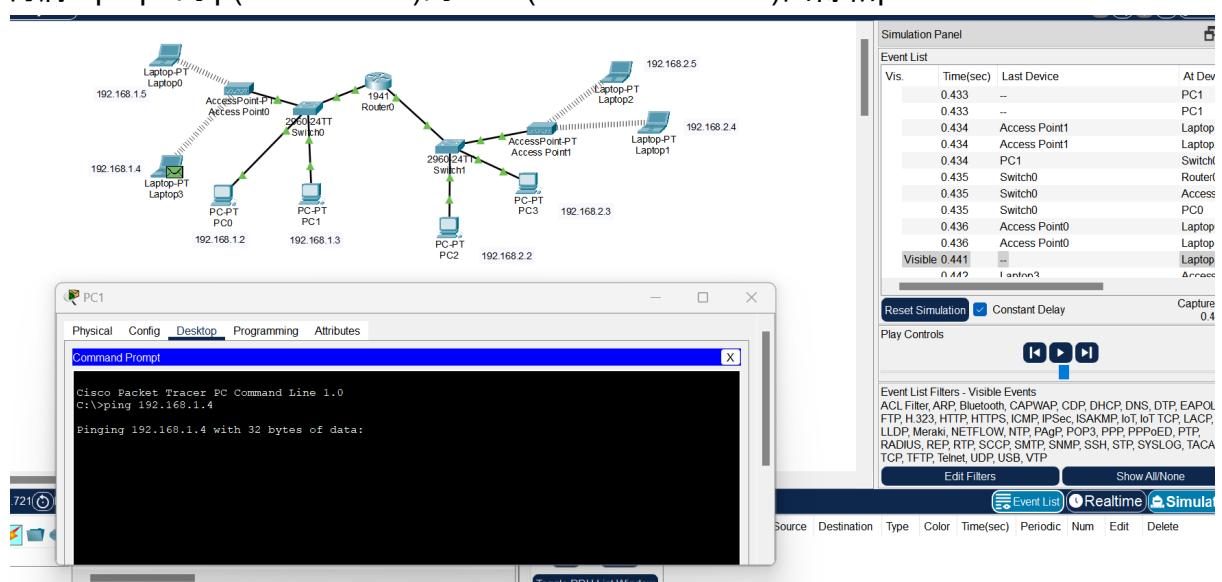
會出現一個ICMP封包(亮綠色)和一個ARP封包(深綠色):



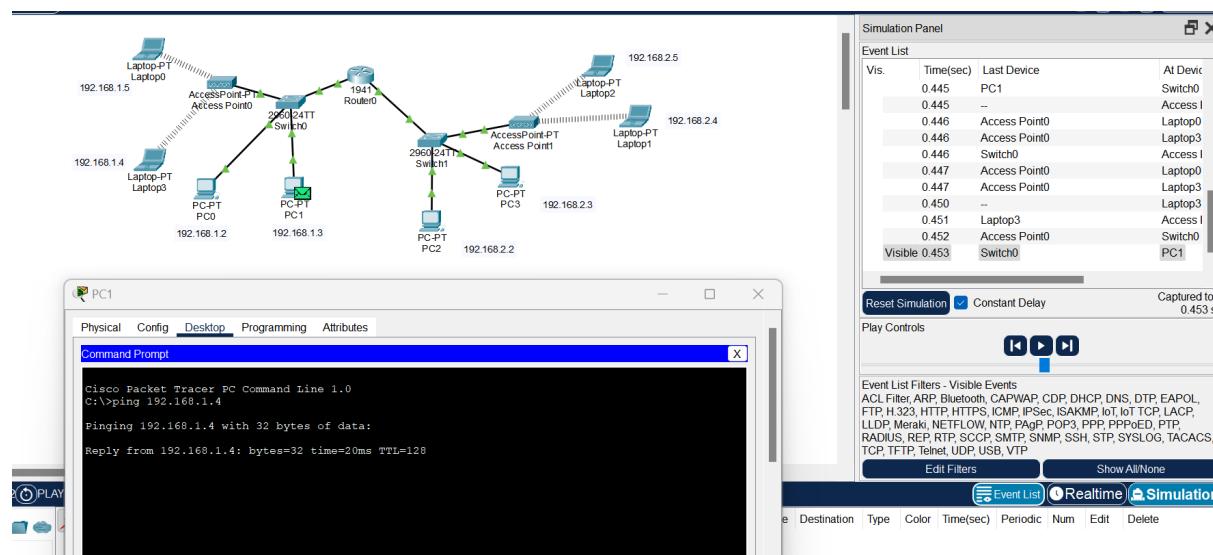
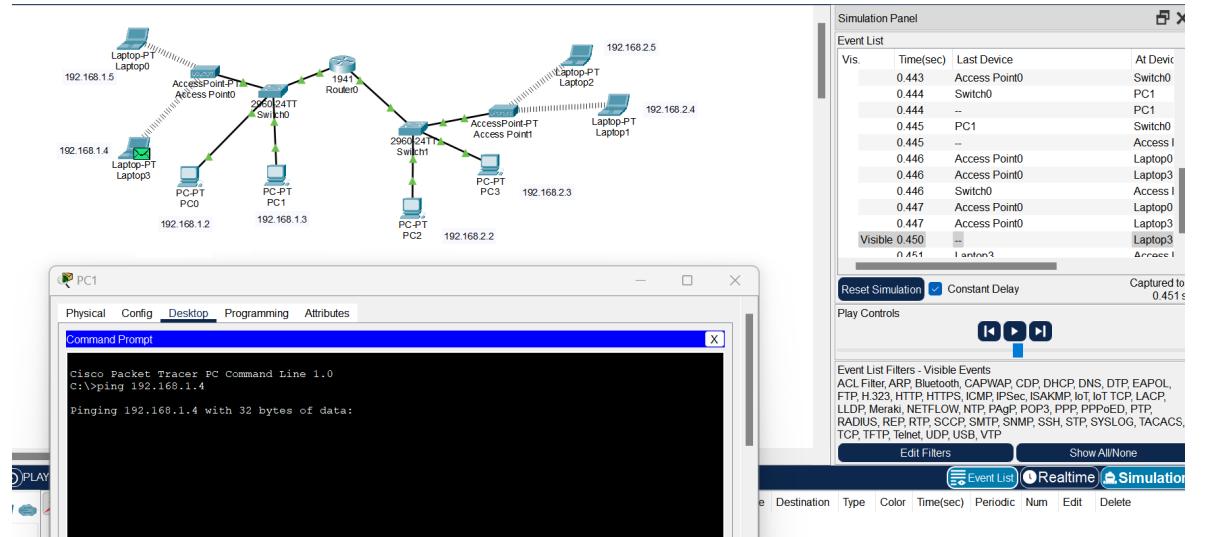
而後ARP封包會先傳送給switch0, 在由switch0傳送給pc0和Access point0。
由圖片可以看到傳到pc0的封包被打了個叉, 代表所尋找的並非是pc0(192.168.1.2)的MAC



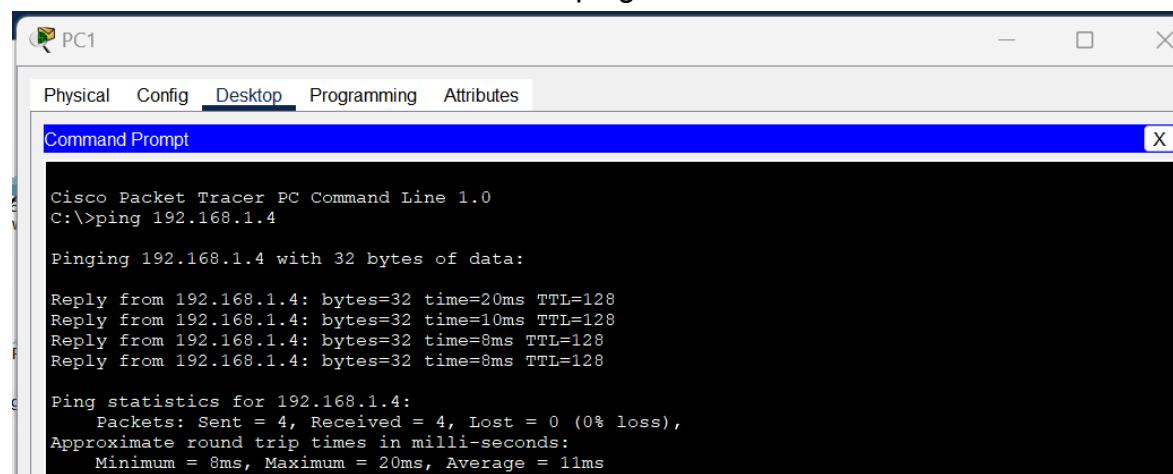
在藉由Access point0傳送給laptop0和laptop3，可知laptop3是ARP封包要找的ip，所以再將laptop3的ip(192.168.1.4)的MAC(0010.1199.36C4)回傳給pc1：



再將ICMP封包(亮綠色)寄給laptop3, 而laptop3收到後再傳送ICMP封包給pc1, 於是在cmd就會出現reply from.....:



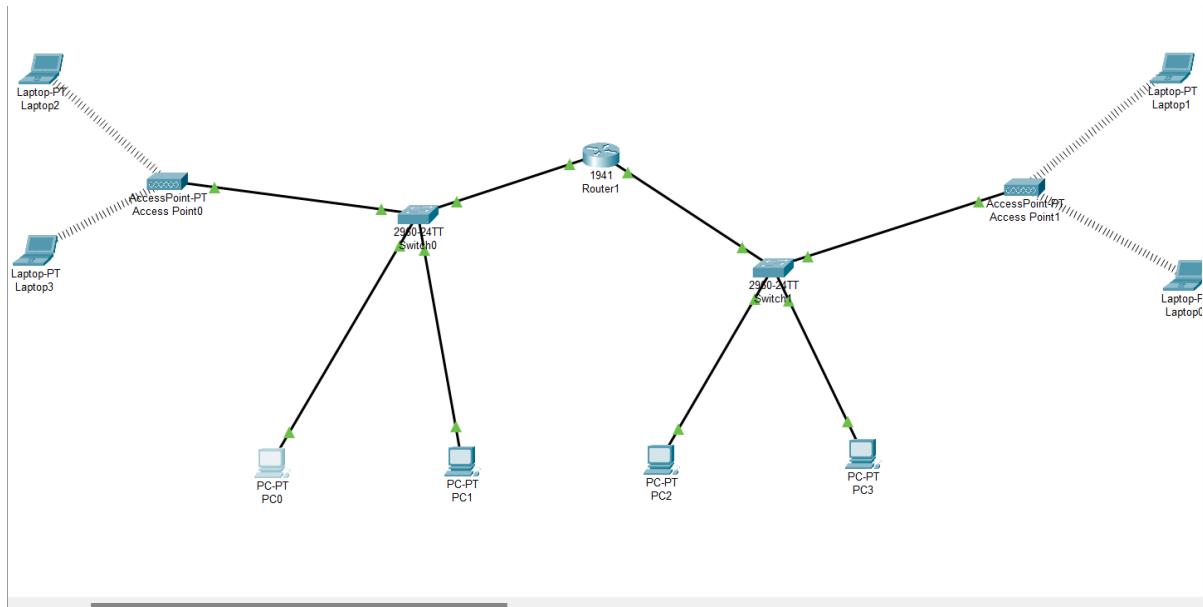
最後再重複寄ICMP直到4次, 就完成一次ping 192.168.1.4:



*ARP封包不一定會出現在每次ping時

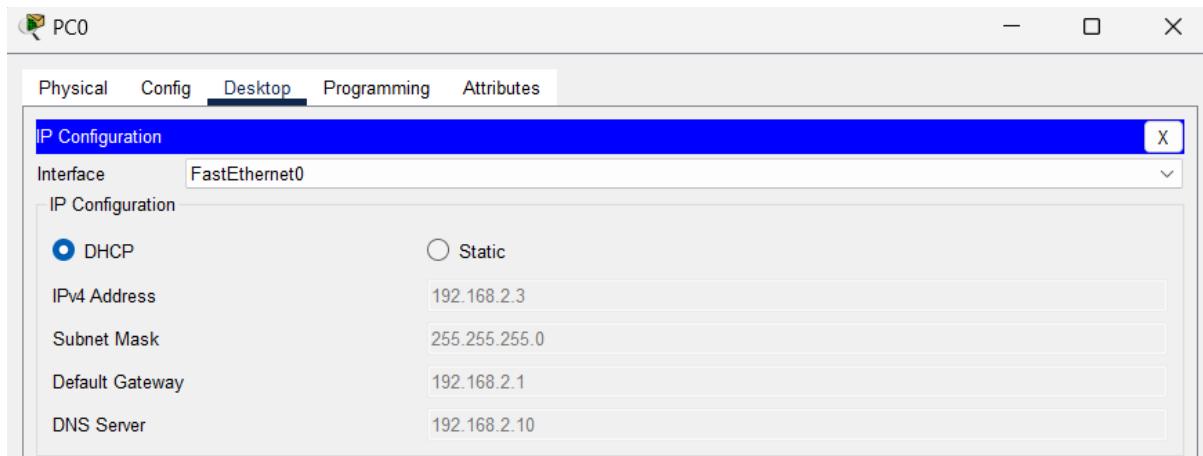
*若是ping 的ip在不同subnet, ICMP封包會被送到路由器, 後會由路由器發送ARP封包來找到目標ip的MAC地址

4.A: network with one router and two sub-networks, each subnetwork uses a LAN switch to connect 2PCs and one WiFi Access Point. Each subnetwork also has two laptops connecting to the WiFi Access Point.

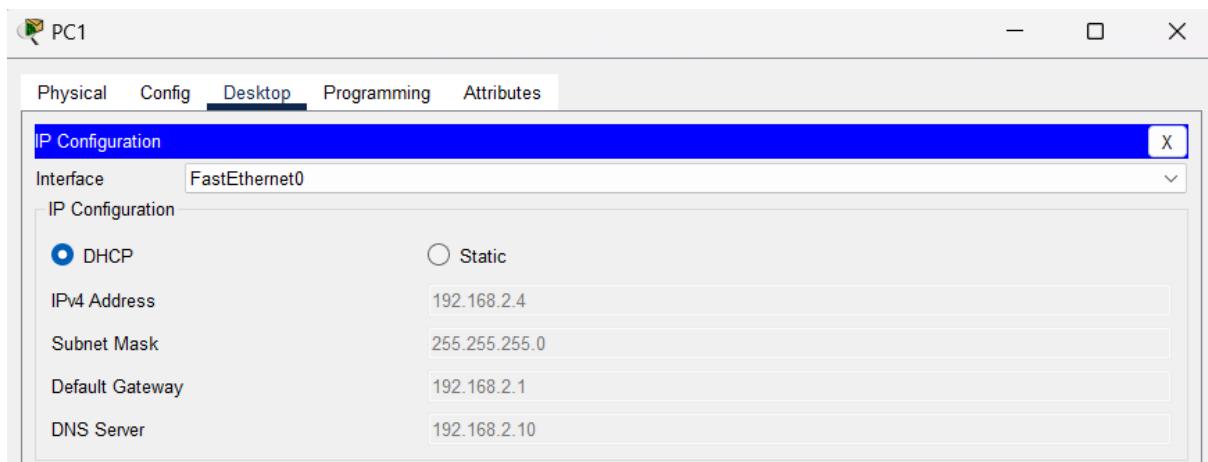


B:each ip address:

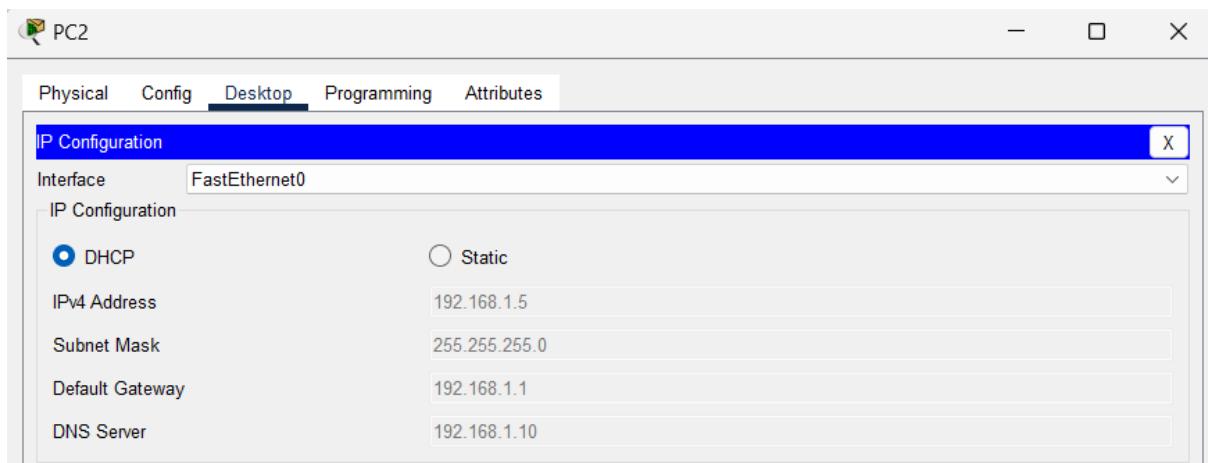
PC0



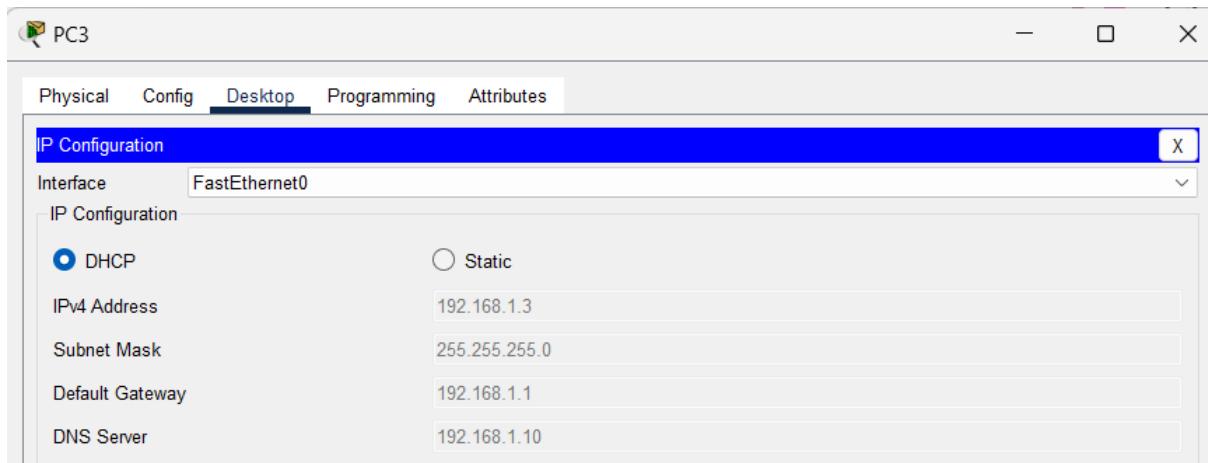
PC1



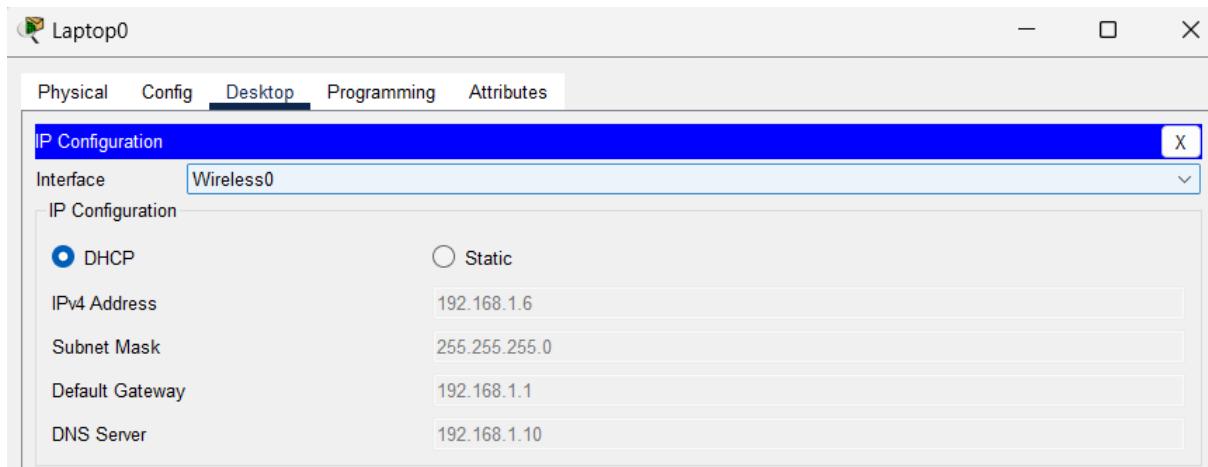
PC2



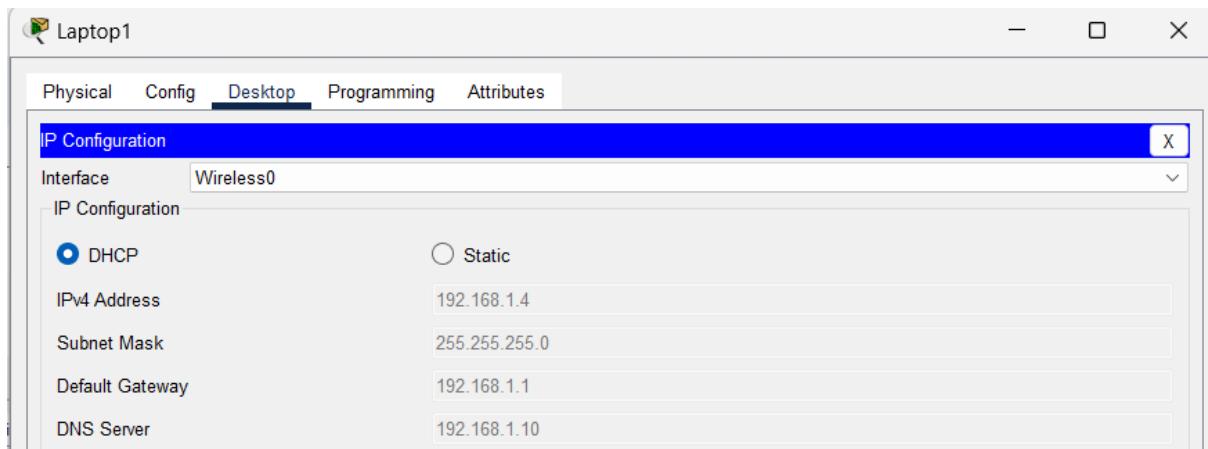
PC3



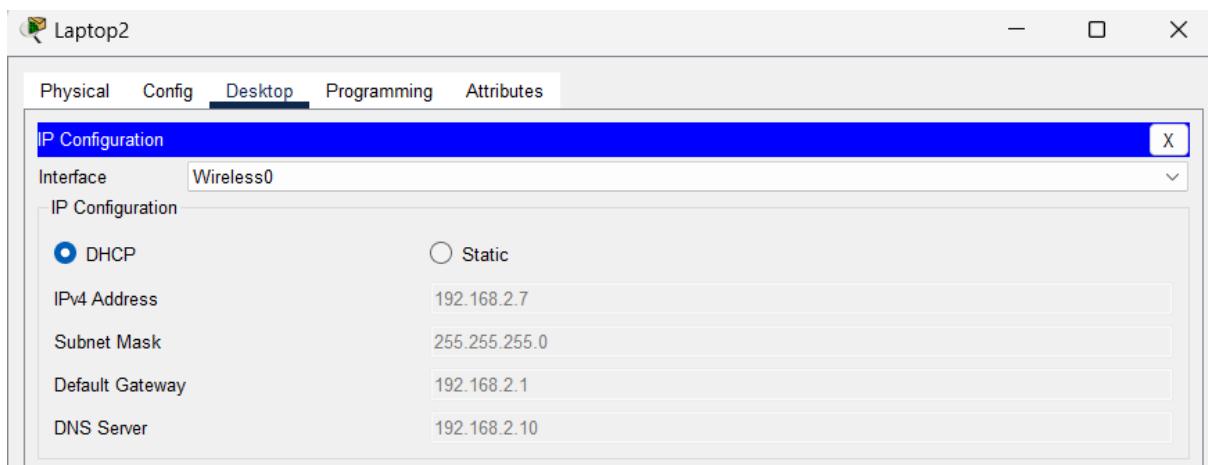
Laptop0



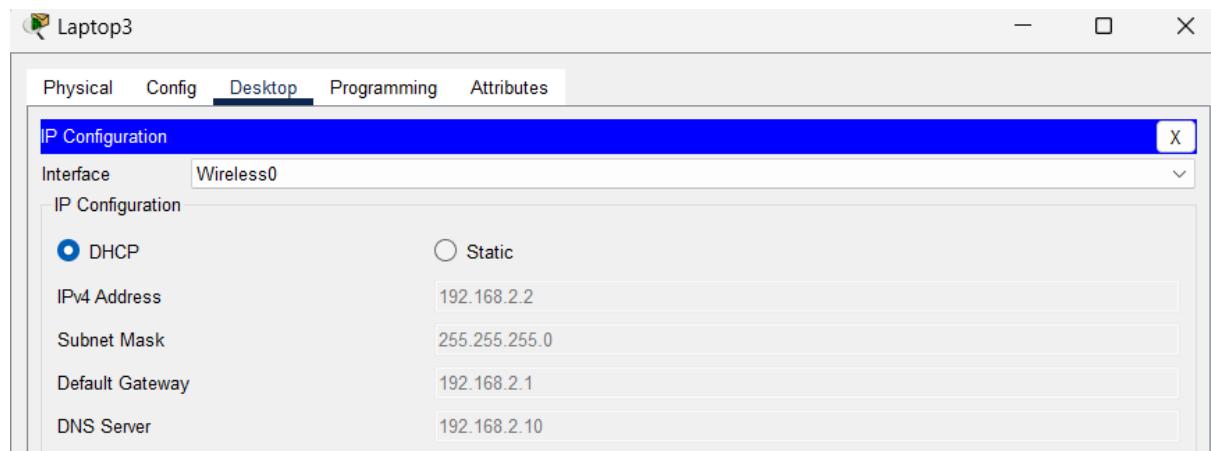
Laptop1



Laptop2



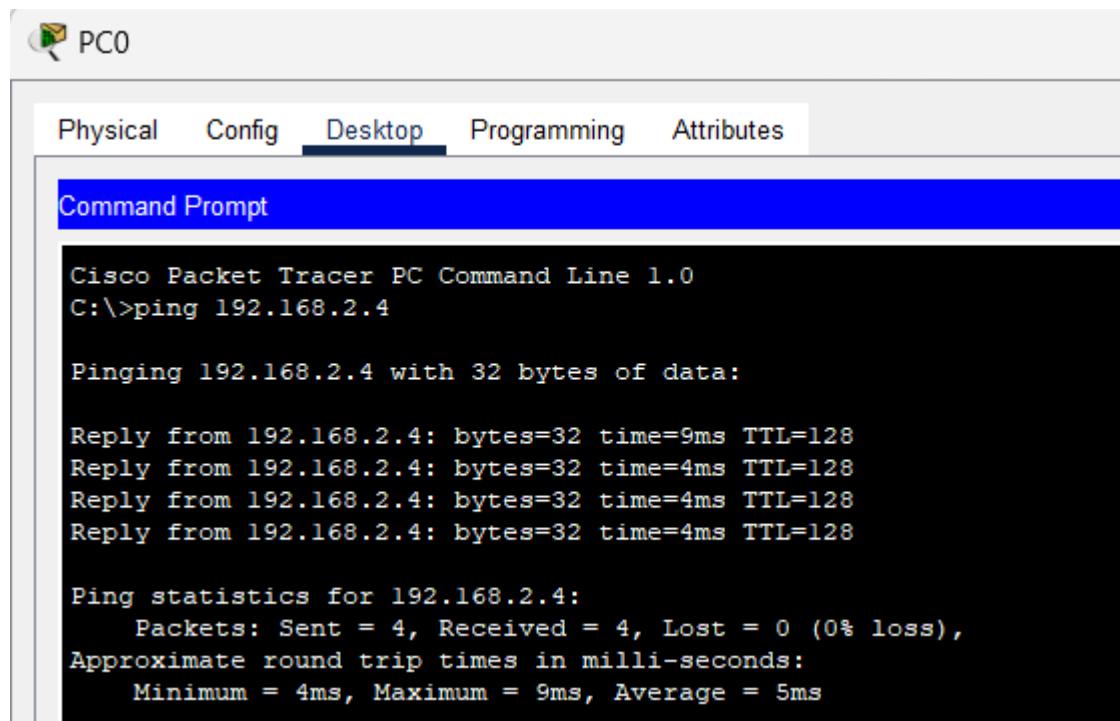
Laptop3



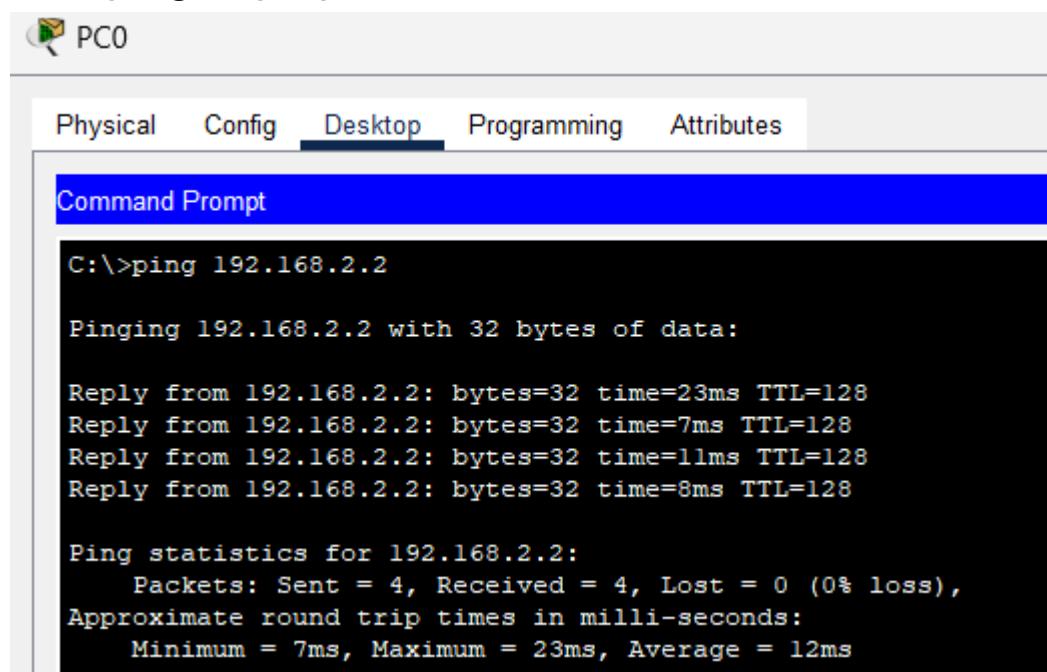
C:ping

同一個subnet:

PC0 ping PC1



PC0 ping Laptop3



PC0

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ping 192.168.2.2

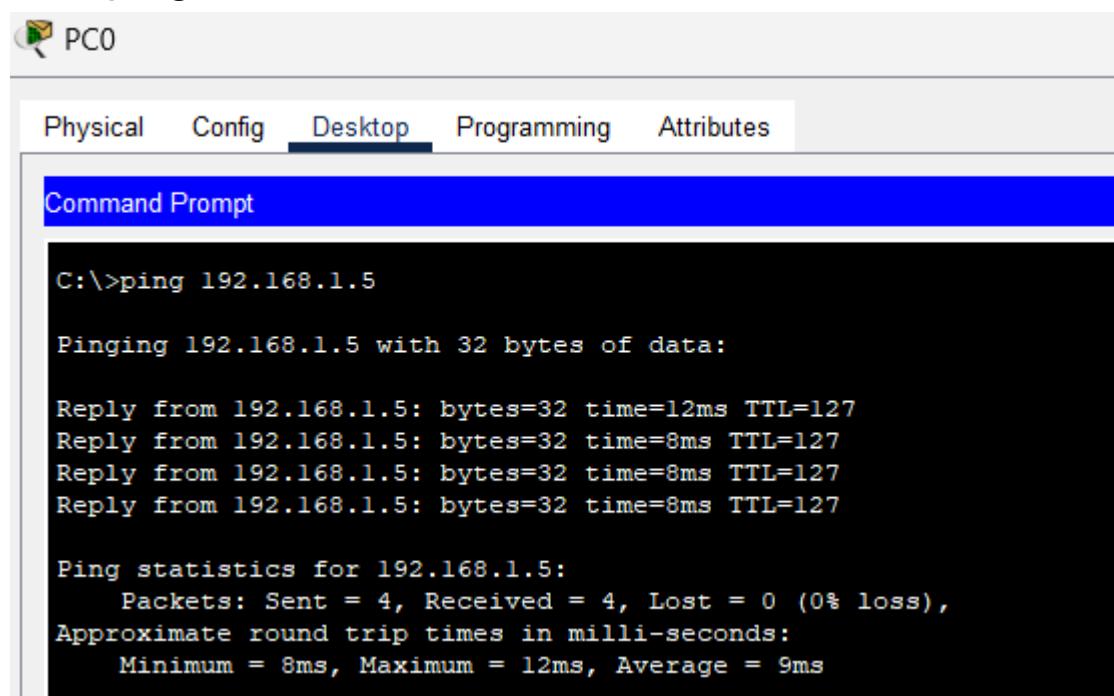
Pinging 192.168.2.2 with 32 bytes of data:

Reply from 192.168.2.2: bytes=32 time=23ms TTL=128
Reply from 192.168.2.2: bytes=32 time=7ms TTL=128
Reply from 192.168.2.2: bytes=32 time=11ms TTL=128
Reply from 192.168.2.2: bytes=32 time=8ms TTL=128

Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 7ms, Maximum = 23ms, Average = 12ms
```

不同subnet:

PC0 ping PC2



PC0

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ping 192.168.1.5

Pinging 192.168.1.5 with 32 bytes of data:

Reply from 192.168.1.5: bytes=32 time=12ms TTL=127
Reply from 192.168.1.5: bytes=32 time=8ms TTL=127
Reply from 192.168.1.5: bytes=32 time=8ms TTL=127
Reply from 192.168.1.5: bytes=32 time=8ms TTL=127

Ping statistics for 192.168.1.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 8ms, Maximum = 12ms, Average = 9ms
```

PC0 ping Laptop1

```

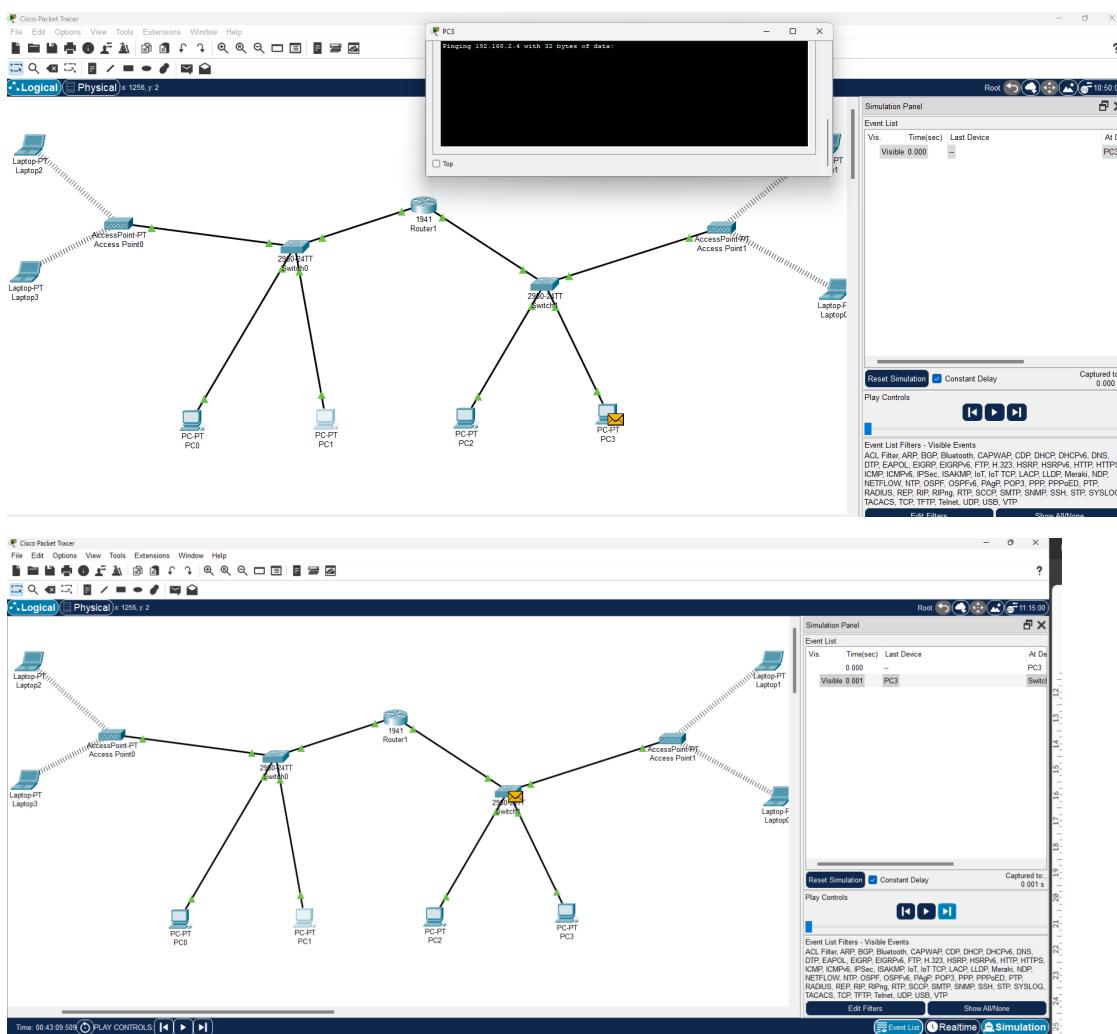
C:\>
C:\>ping 192.168.1.4

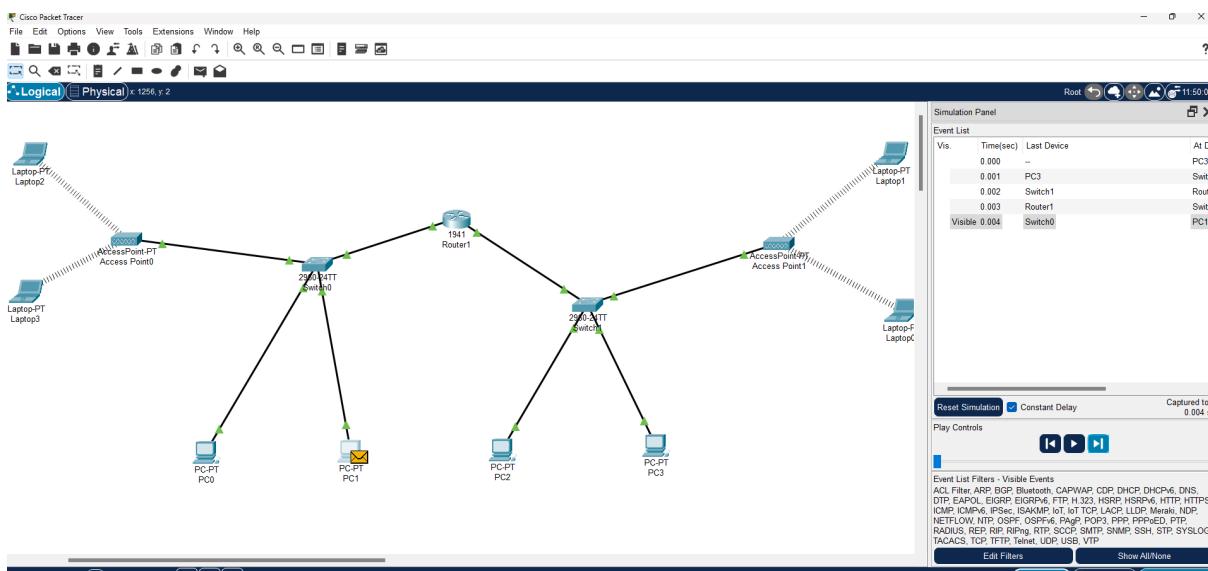
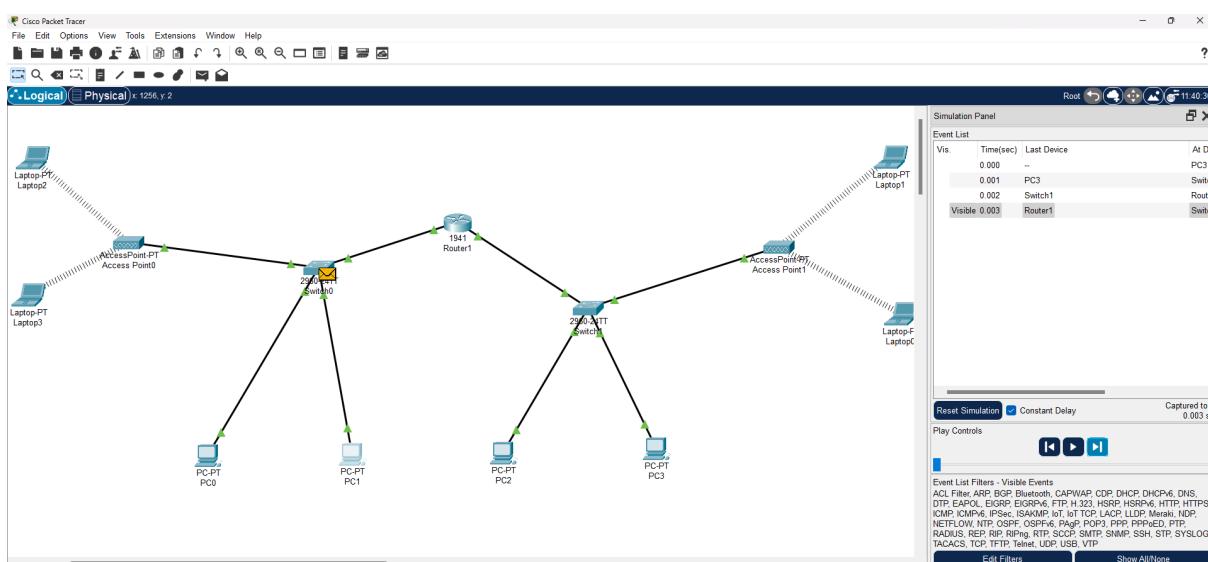
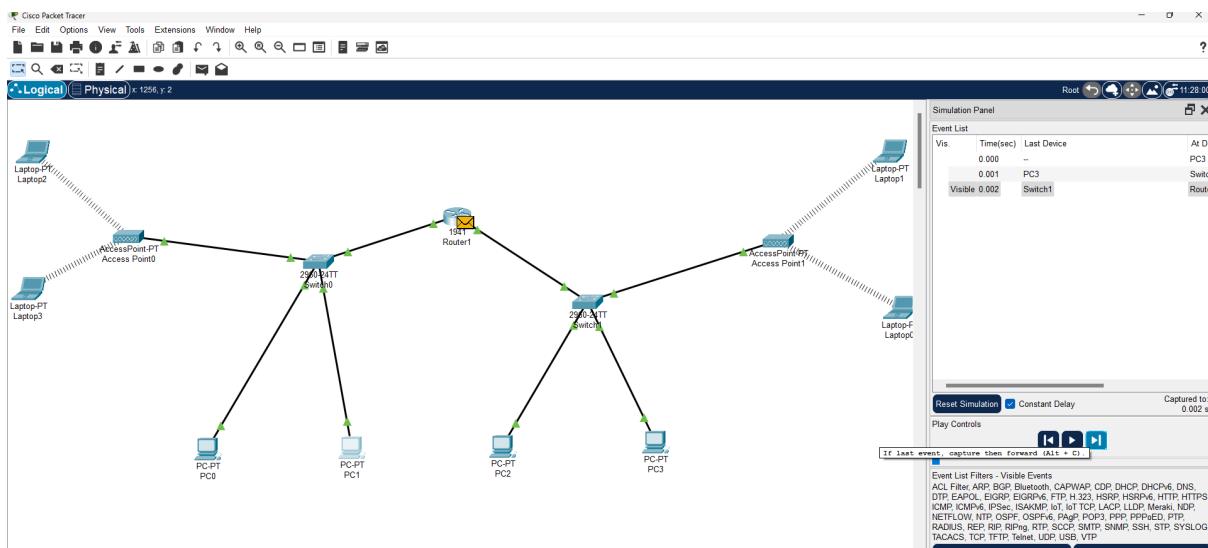
Pinging 192.168.1.4 with 32 bytes of data:

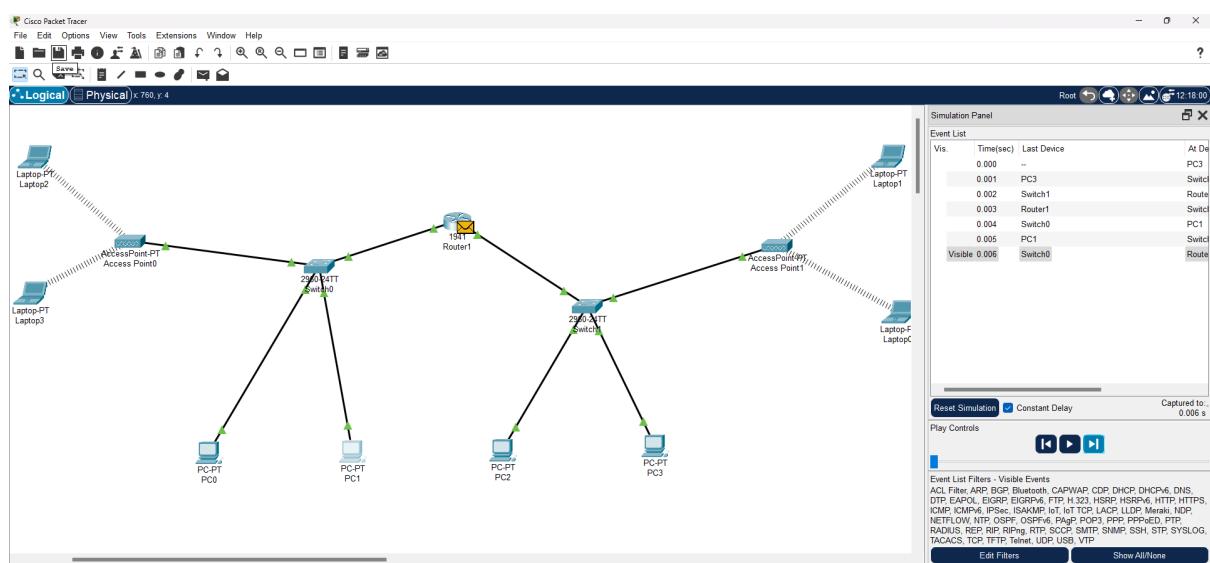
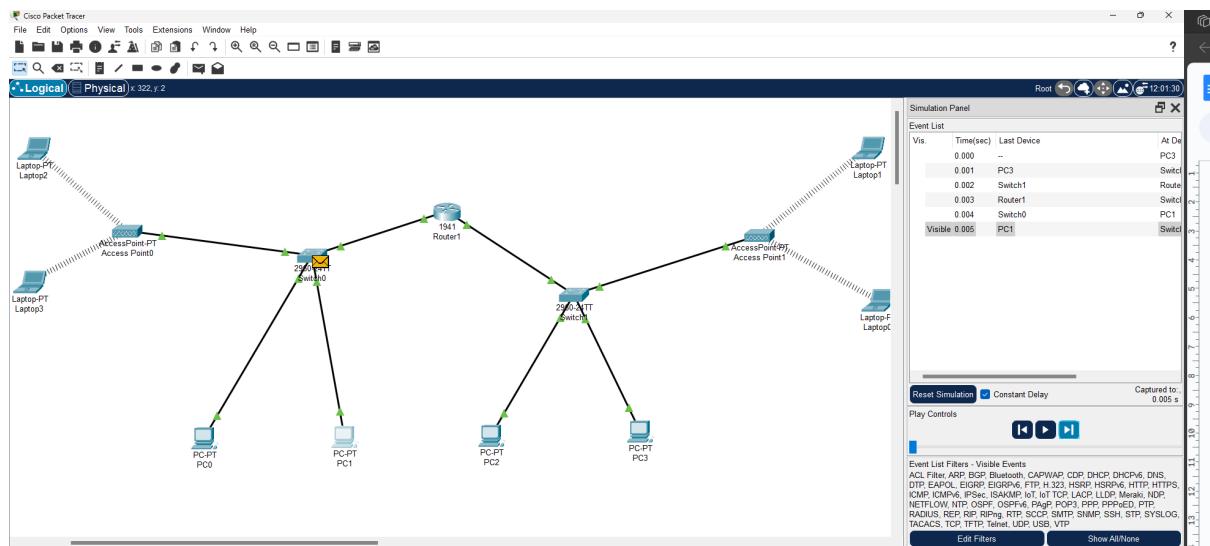
Request timed out.
Reply from 192.168.1.4: bytes=32 time=14ms TTL=127
Reply from 192.168.1.4: bytes=32 time=12ms TTL=127
Reply from 192.168.1.4: bytes=32 time=11ms TTL=127

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 11ms, Maximum = 14ms, Average = 12ms
  
```

D:

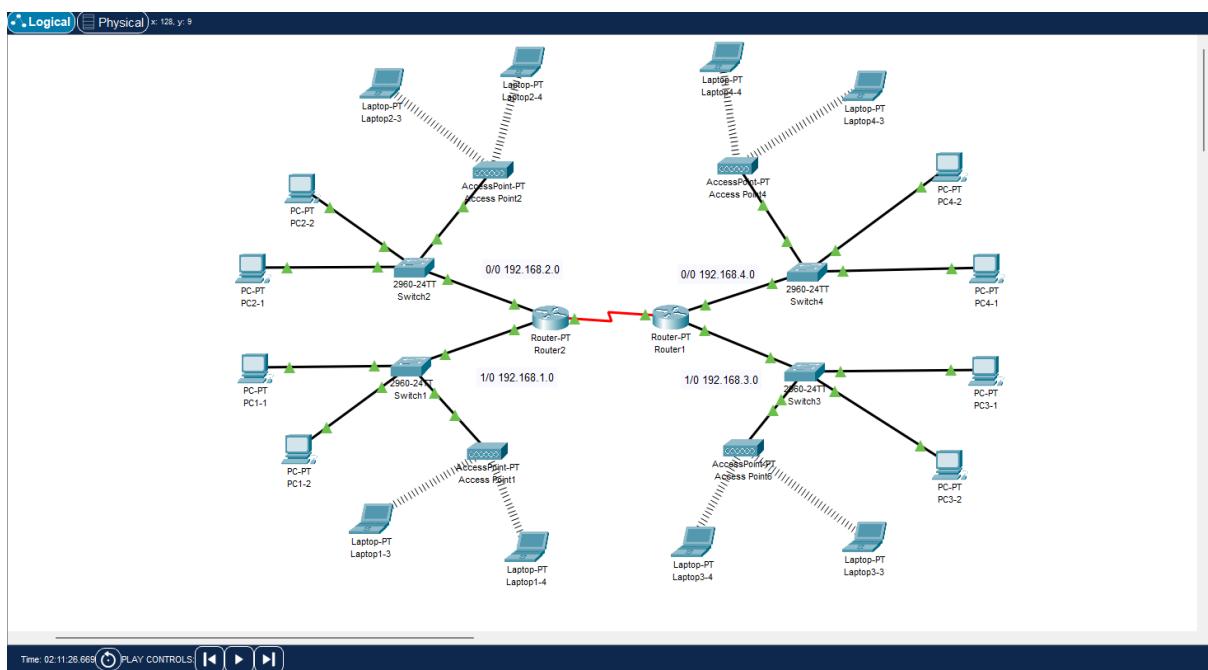






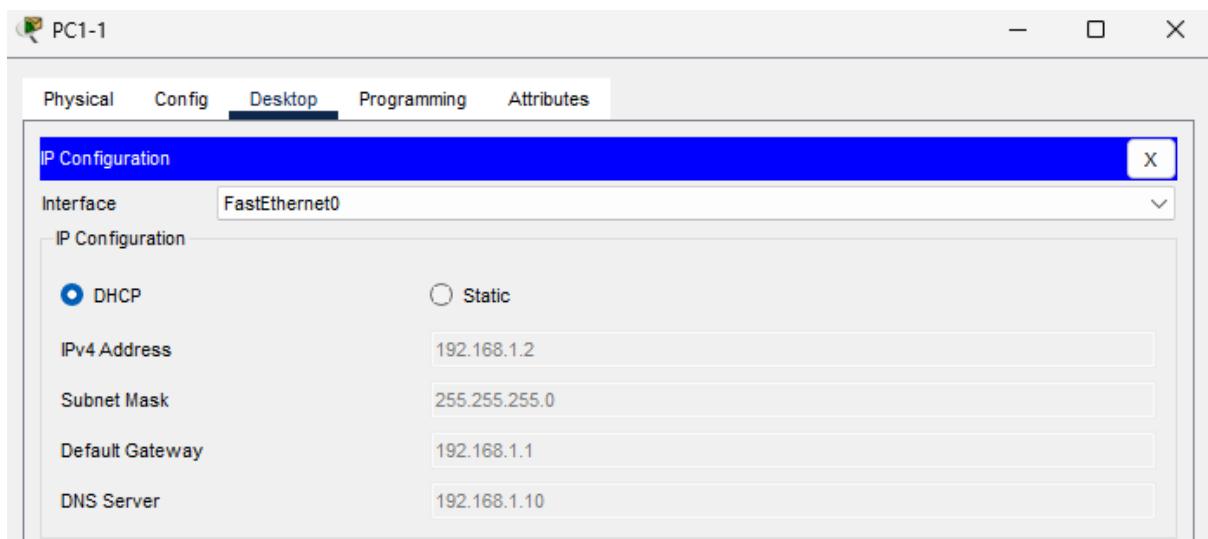
重複4次

5.A:

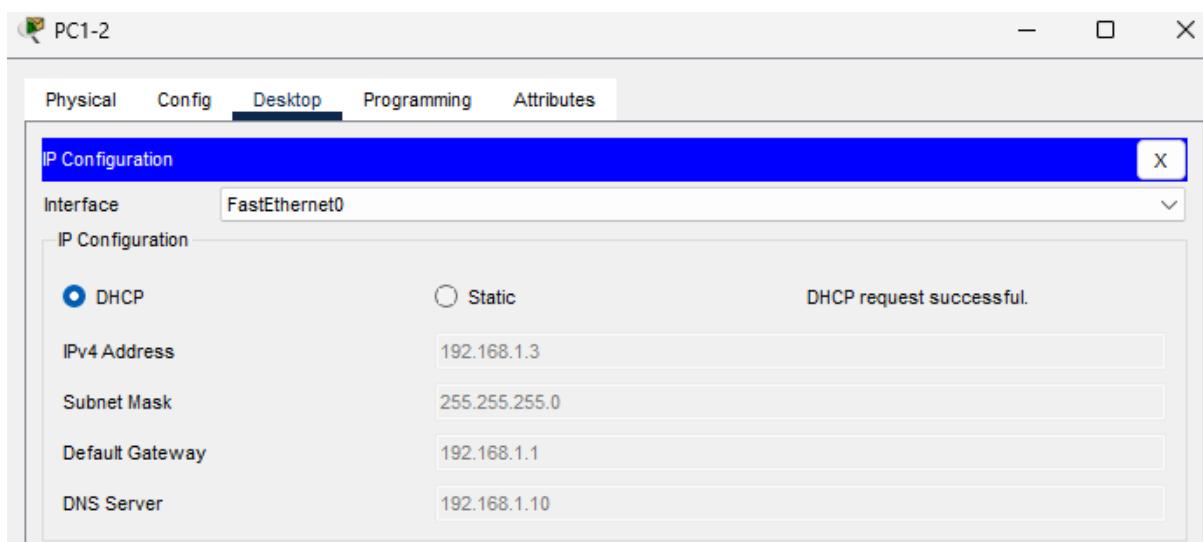


B:each ip address

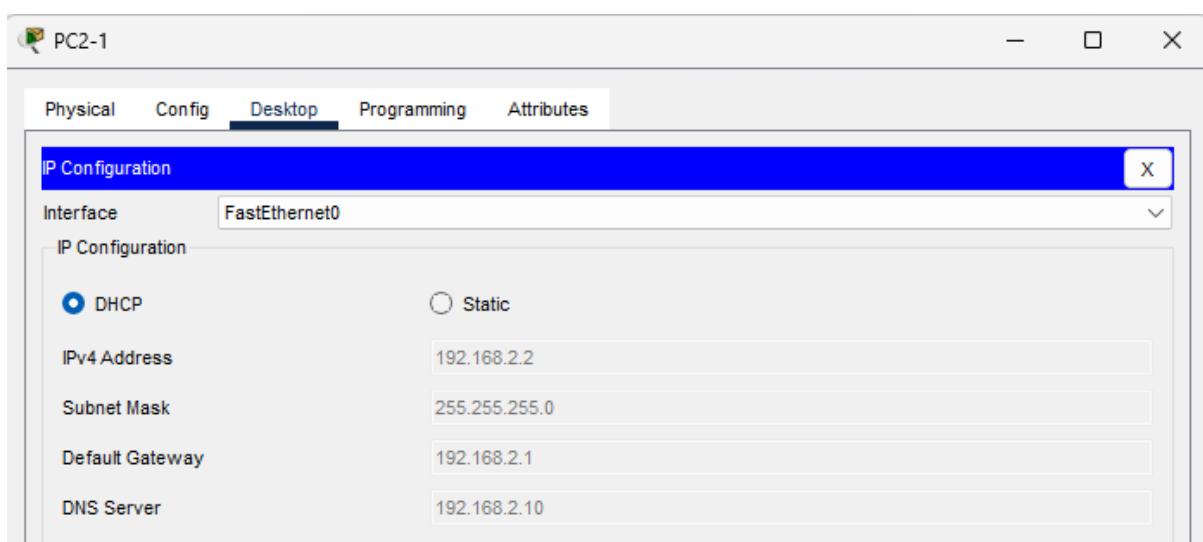
PC1-1



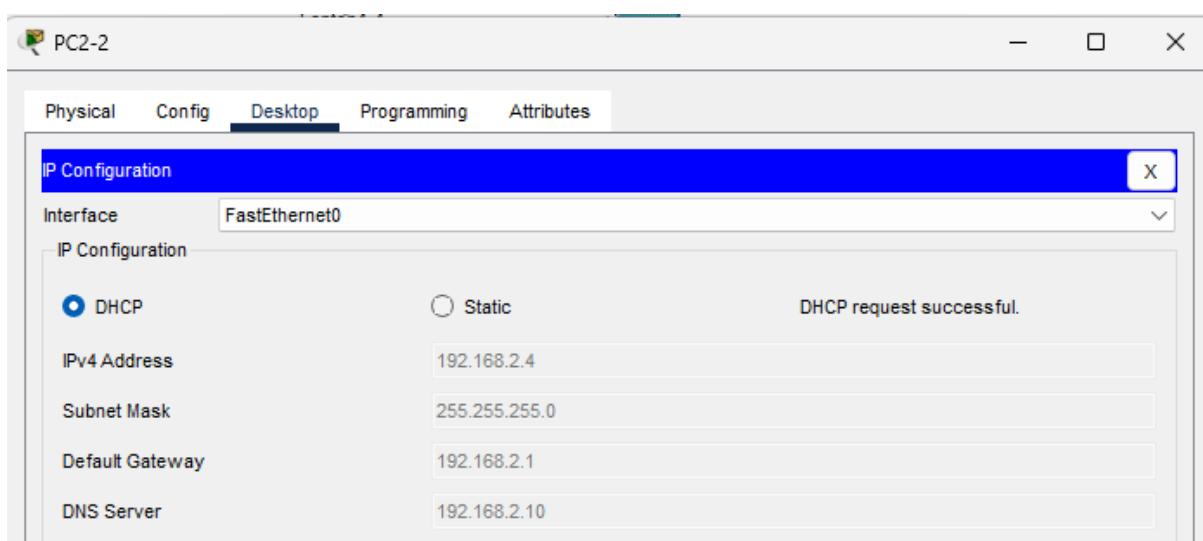
PC1-2



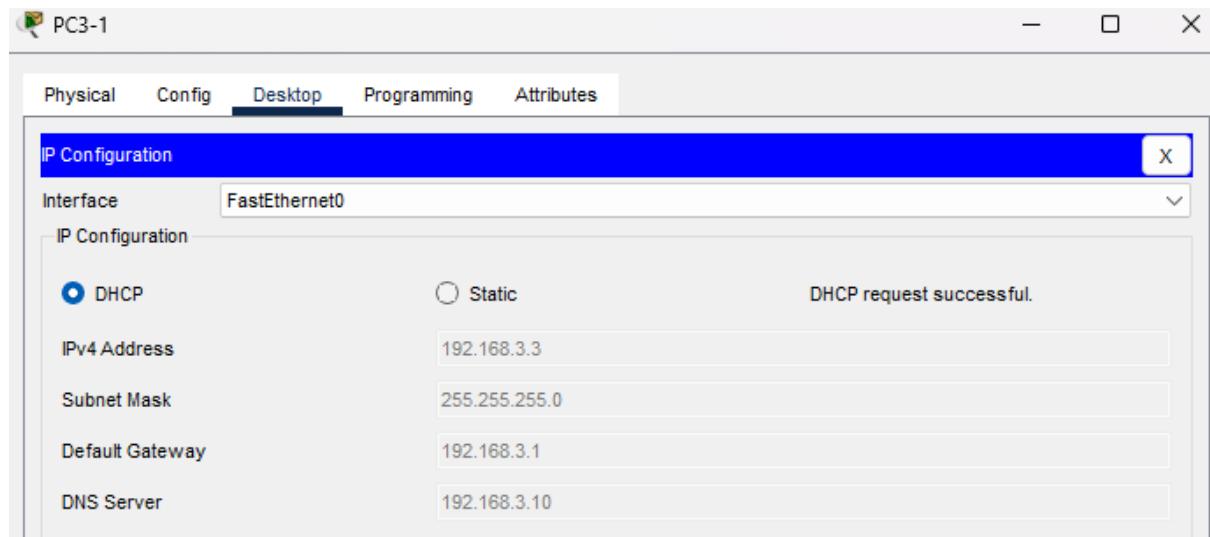
PC2-1



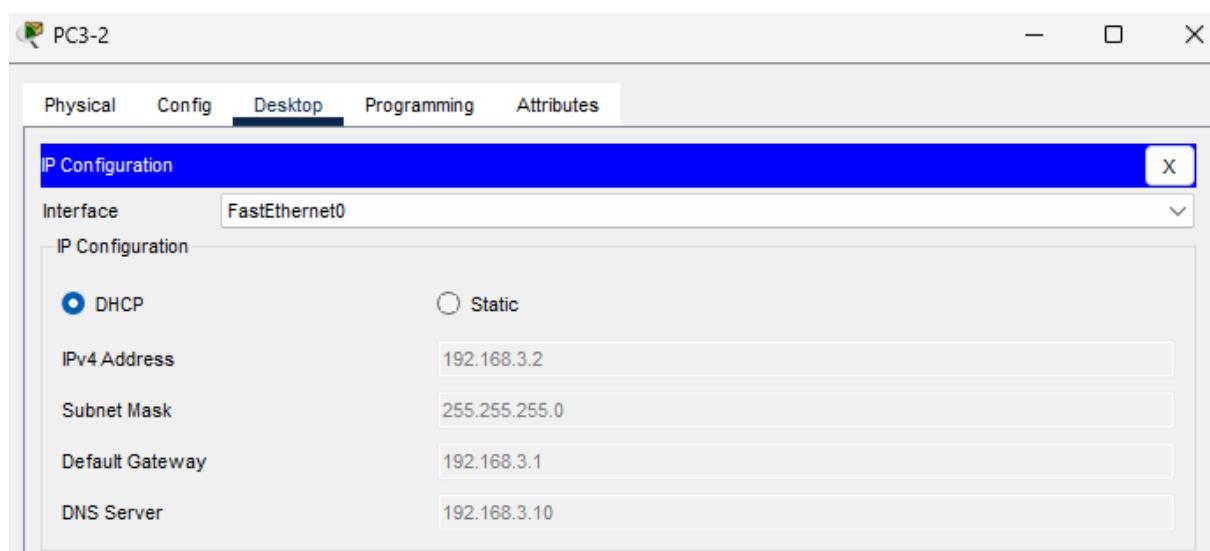
PC2-2



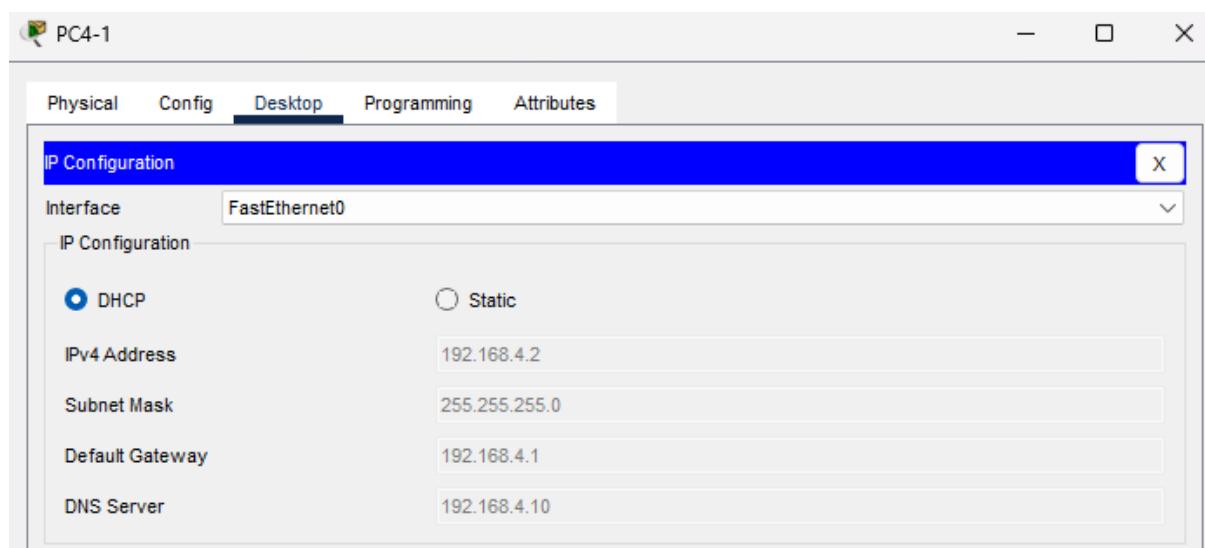
PC3-1



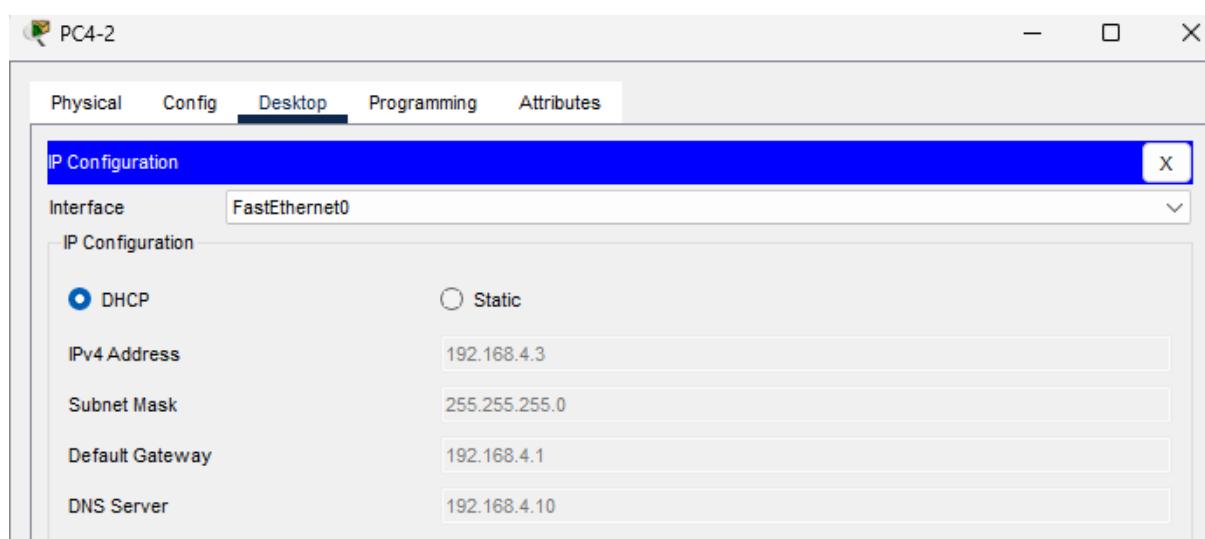
PC3-2



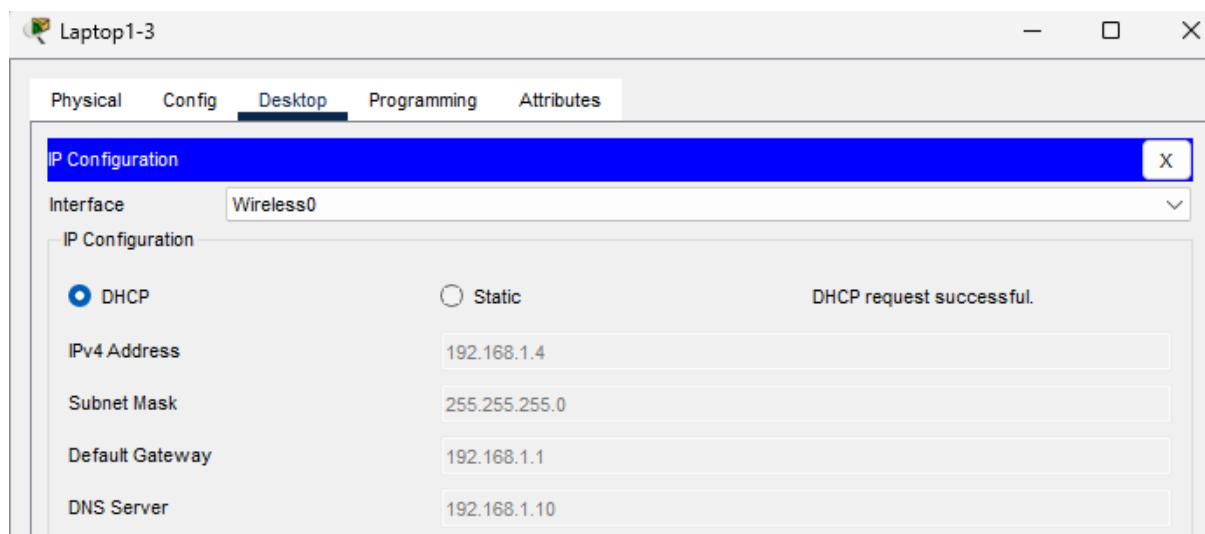
PC4-1



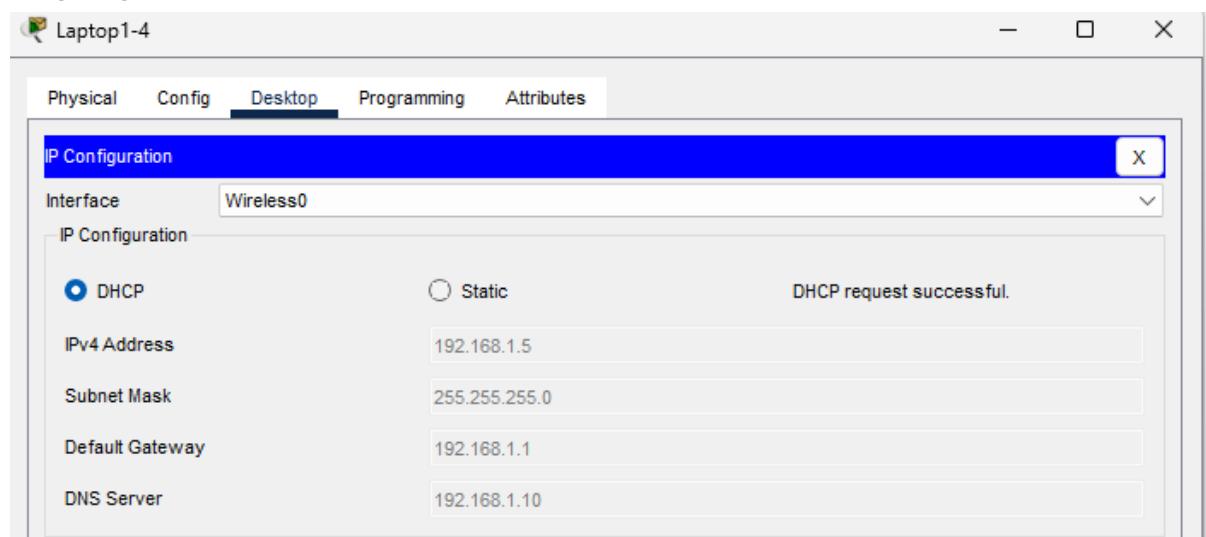
PC4-2



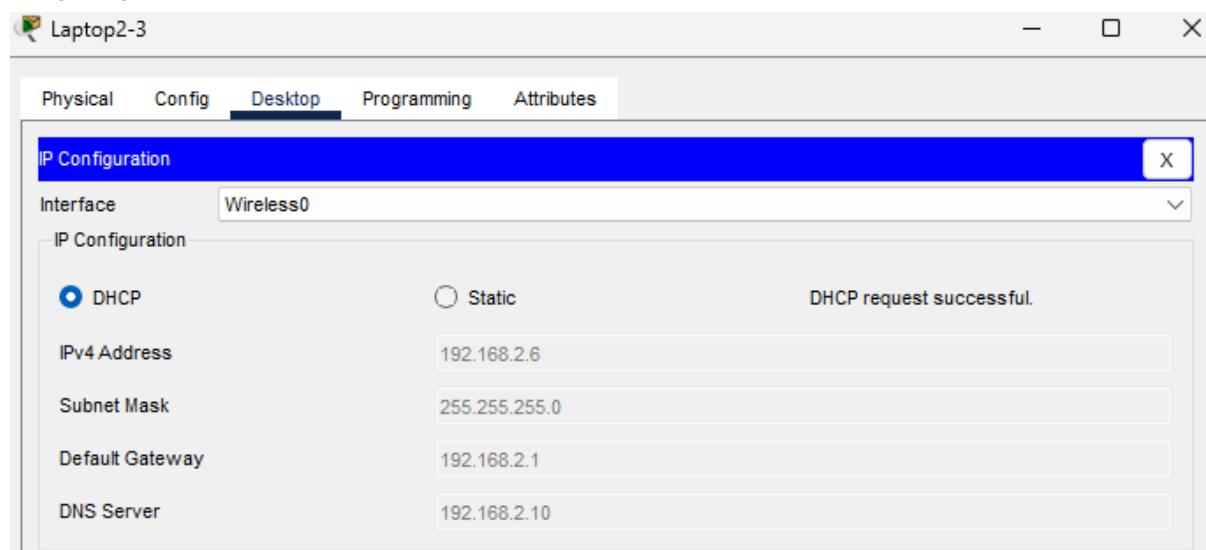
Laptop1-3



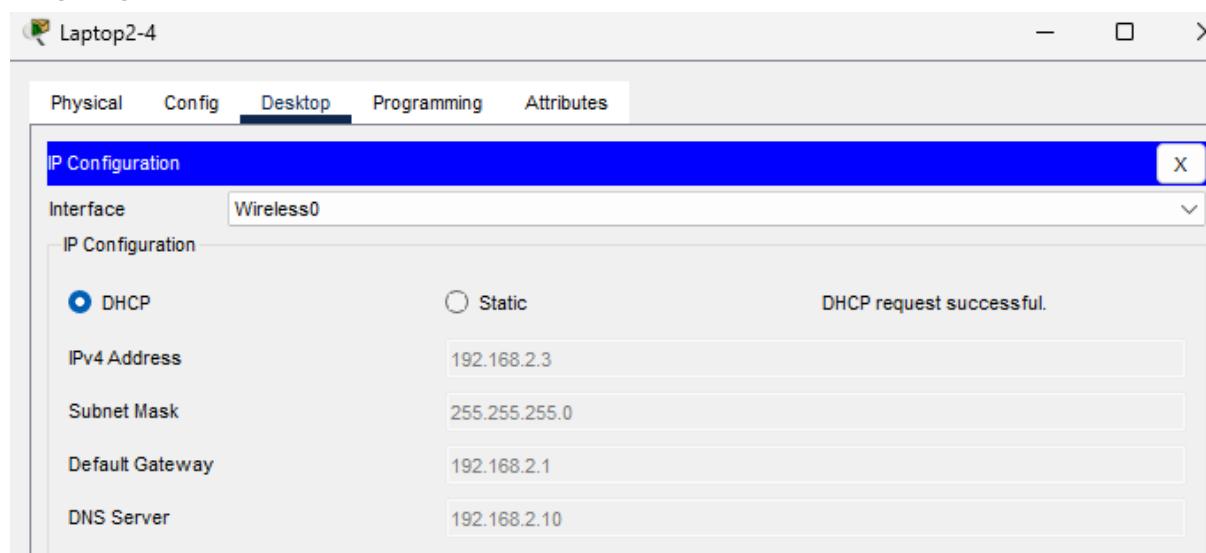
Laptop1-4



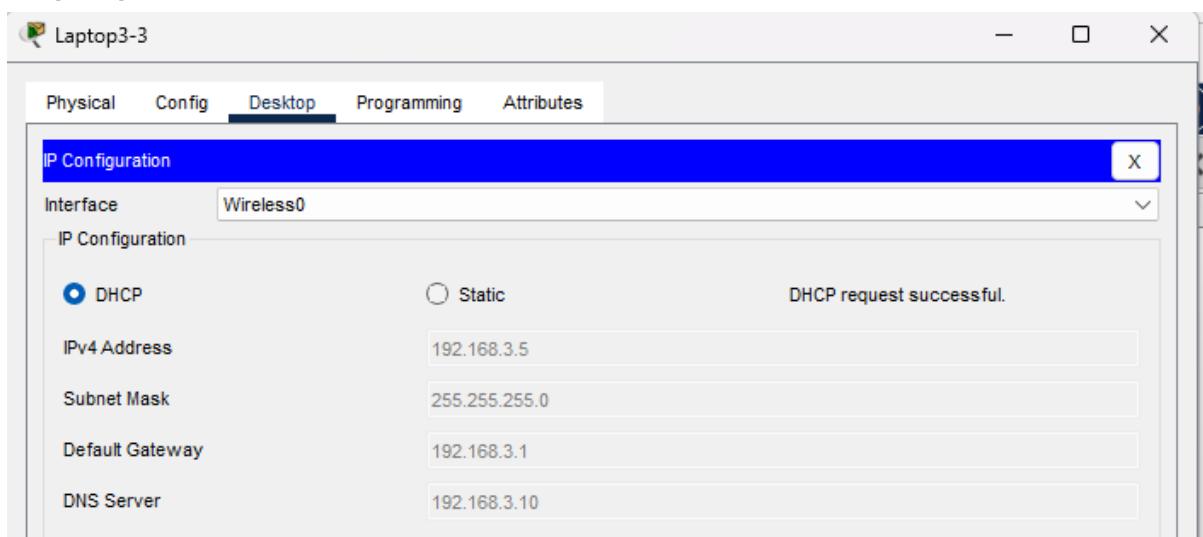
Laptop2-3



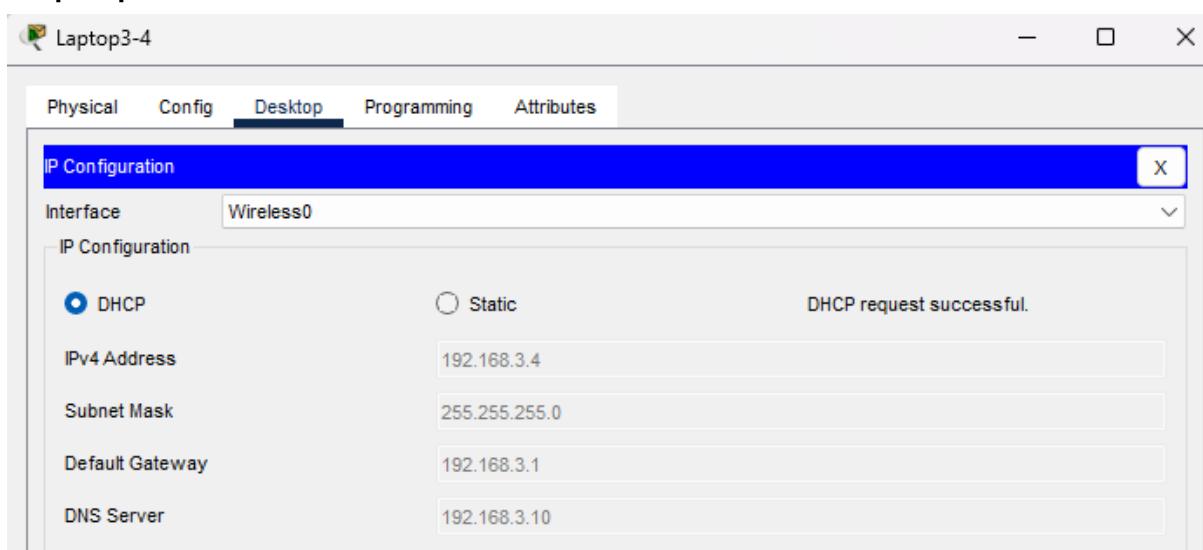
Laptop2-4



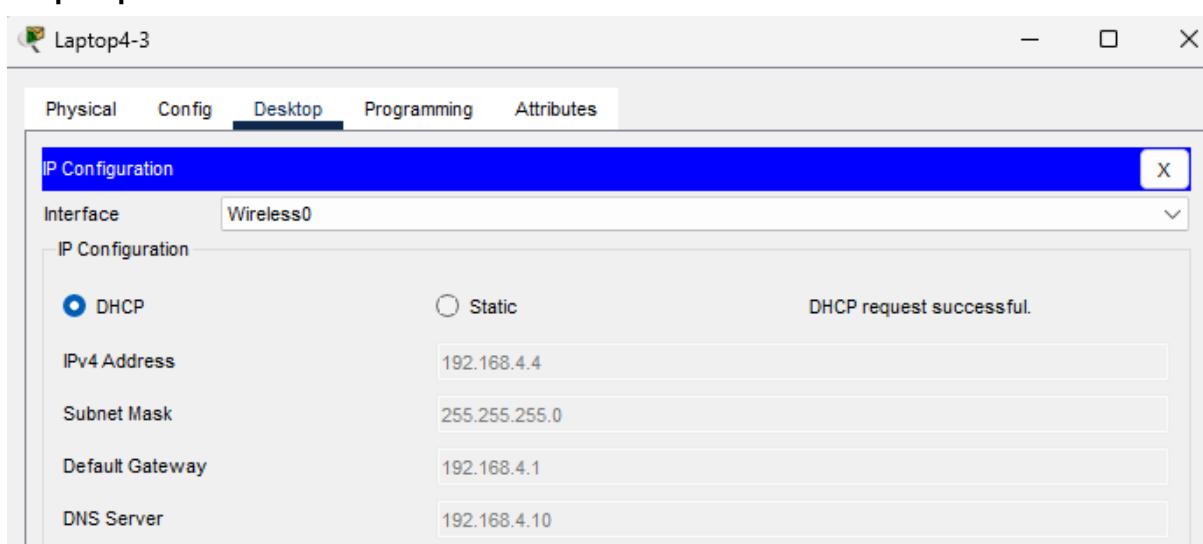
Laptop3-3



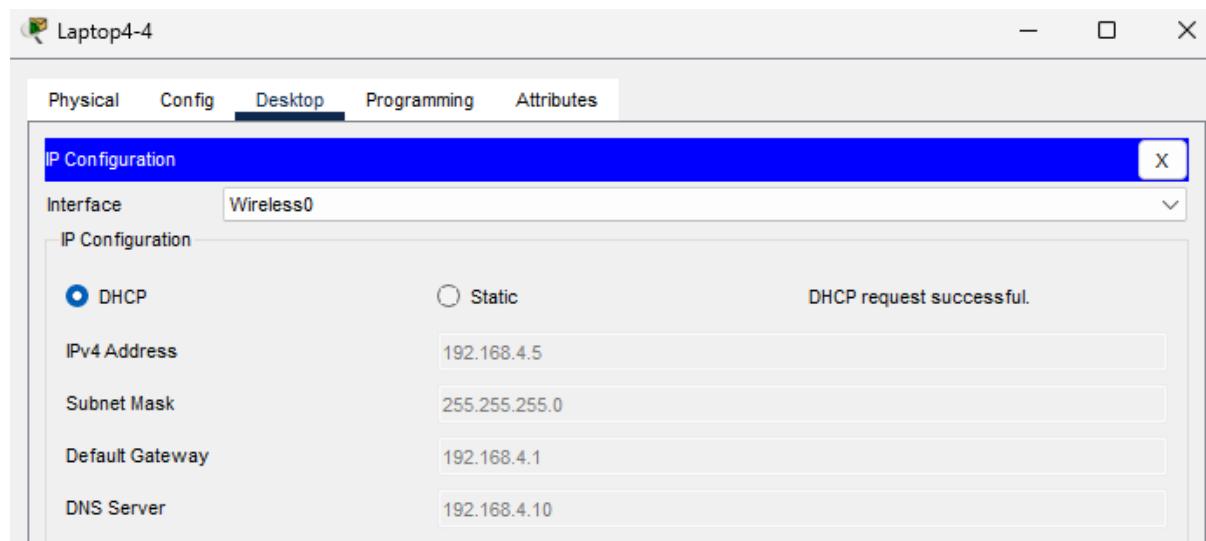
Laptop3-4



Laptop4-3



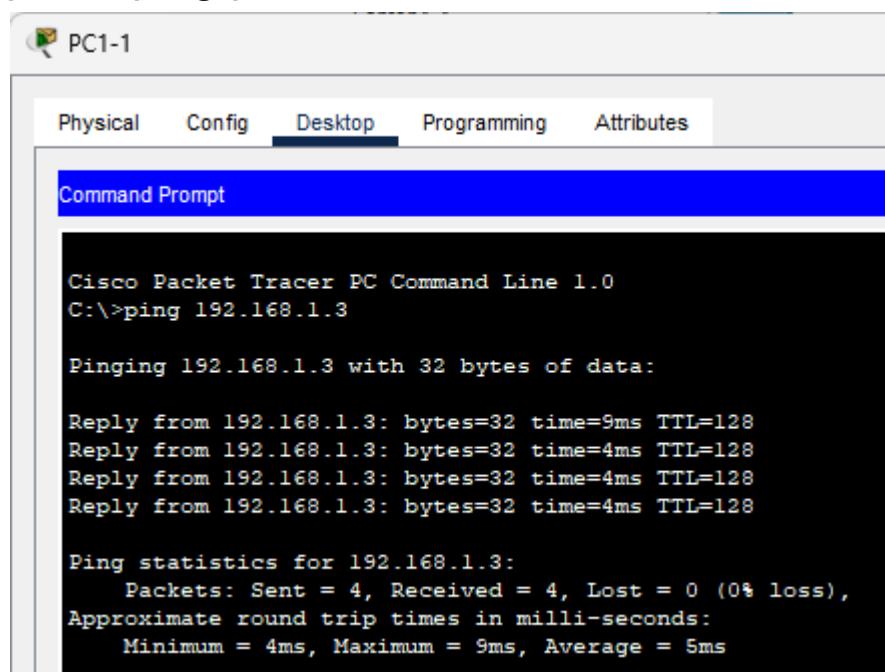
Laptop4-4



C:Ping

同個subnet :

pc1-1 ping pc1-2



pc1-1 ping laptop1-3

```
PC1-1
Pinging 192.168.1.4 with 32 bytes of data:
Reply from 192.168.1.4: bytes=32 time=18ms TTL=128
Reply from 192.168.1.4: bytes=32 time=8ms TTL=128
Reply from 192.168.1.4: bytes=32 time=10ms TTL=128
Reply from 192.168.1.4: bytes=32 time=9ms TTL=128

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 8ms, Maximum = 18ms, Average = 11ms
```

不同subnet:

pc1-1 ping pc2-1

```
PC1-1
Pinging 192.168.2.2 with 32 bytes of data:
Reply from 192.168.2.2: bytes=32 time=12ms TTL=127
Reply from 192.168.2.2: bytes=32 time=8ms TTL=127
Reply from 192.168.2.2: bytes=32 time=8ms TTL=127
Reply from 192.168.2.2: bytes=32 time=8ms TTL=127

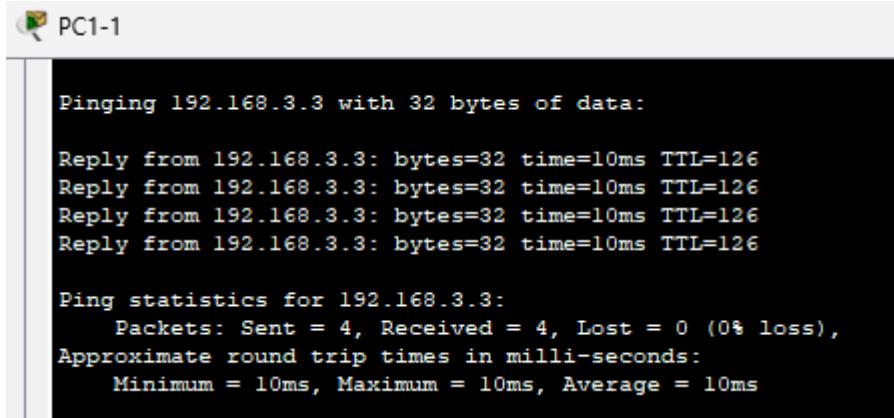
Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 8ms, Maximum = 12ms, Average = 9ms
```

pc1-1 ping laptop2-3

```
PC1-1
Pinging 192.168.2.6 with 32 bytes of data:
Reply from 192.168.2.6: bytes=32 time=11ms TTL=127
Reply from 192.168.2.6: bytes=32 time=13ms TTL=127
Reply from 192.168.2.6: bytes=32 time=12ms TTL=127
Reply from 192.168.2.6: bytes=32 time=15ms TTL=127

Ping statistics for 192.168.2.6:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 11ms, Maximum = 15ms, Average = 12ms
```

不同router:
pc1-1 ping pc3-1

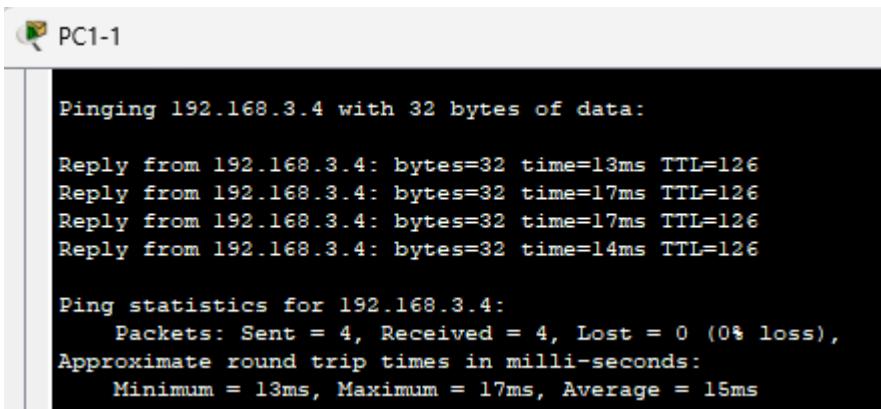


```
Pinging 192.168.3.3 with 32 bytes of data:

Reply from 192.168.3.3: bytes=32 time=10ms TTL=126

Ping statistics for 192.168.3.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 10ms, Maximum = 10ms, Average = 10ms
```

pc1-1 ping laptop 3-4



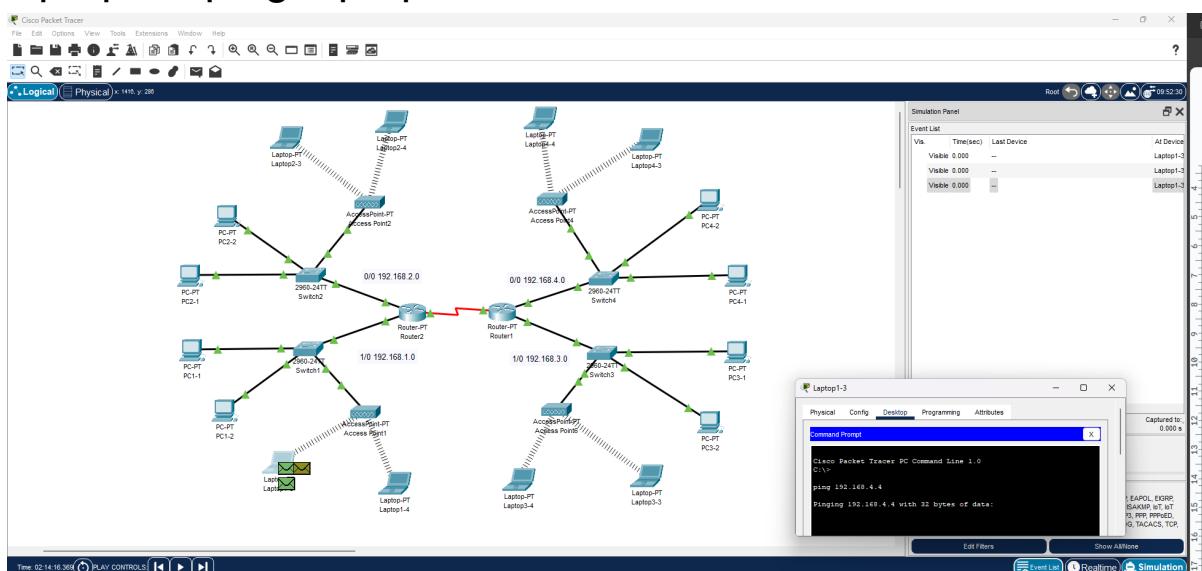
```
Pinging 192.168.3.4 with 32 bytes of data:

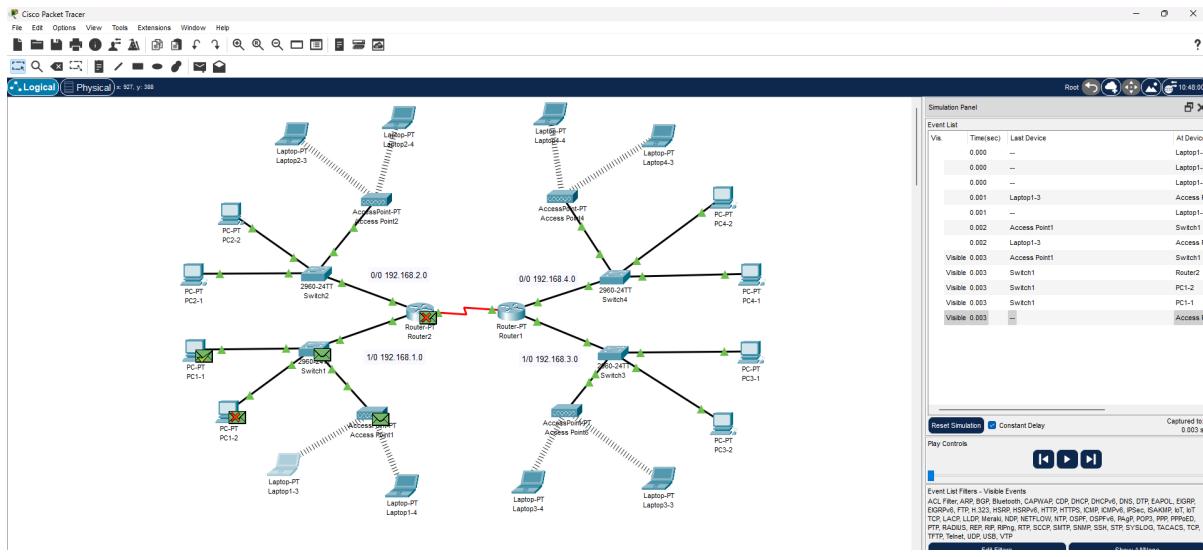
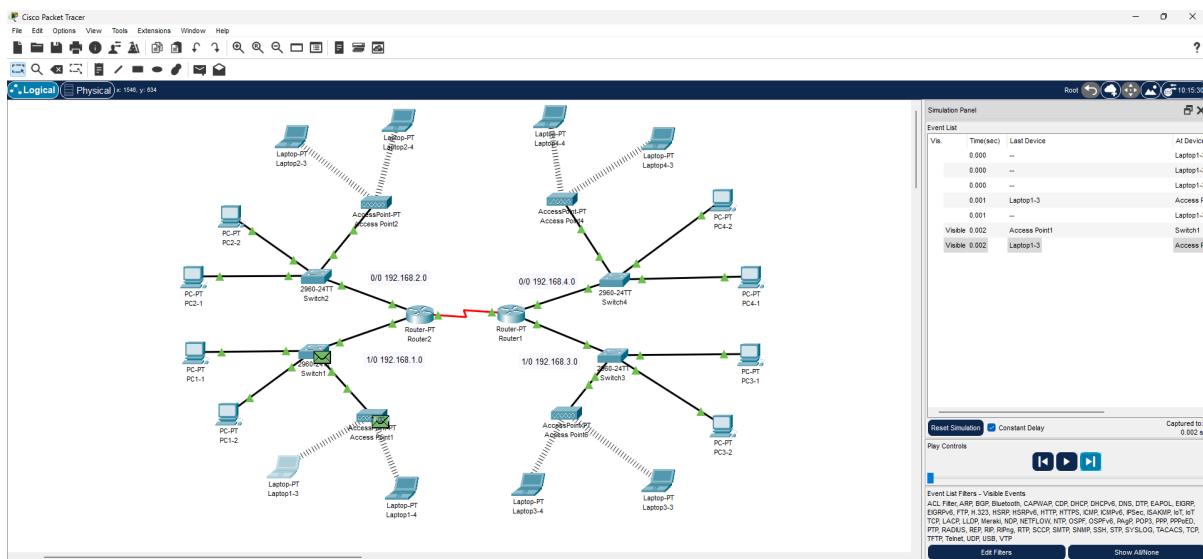
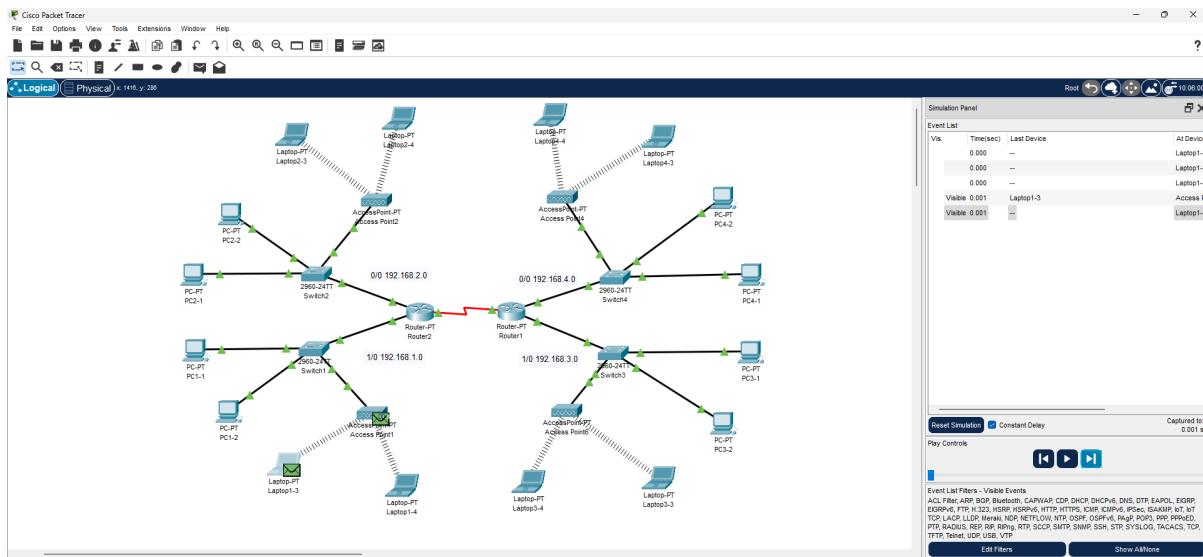
Reply from 192.168.3.4: bytes=32 time=13ms TTL=126
Reply from 192.168.3.4: bytes=32 time=17ms TTL=126
Reply from 192.168.3.4: bytes=32 time=17ms TTL=126
Reply from 192.168.3.4: bytes=32 time=14ms TTL=126

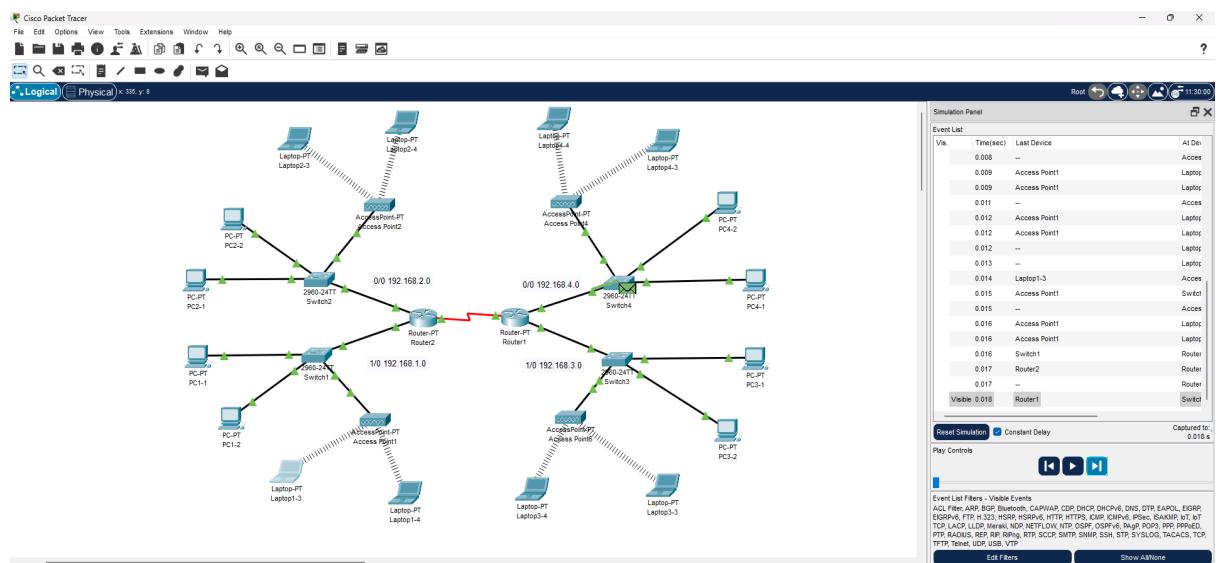
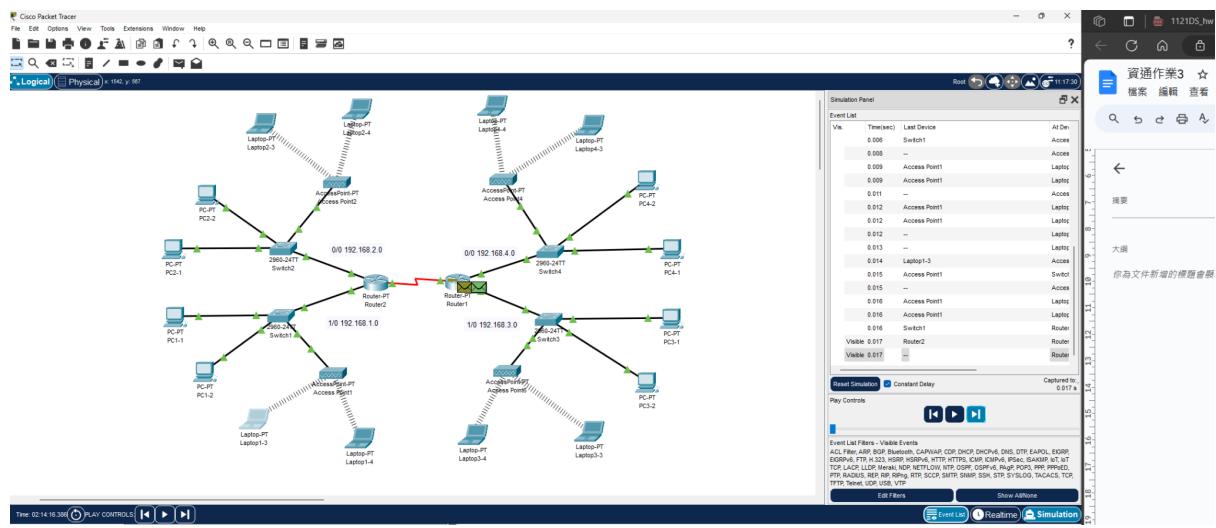
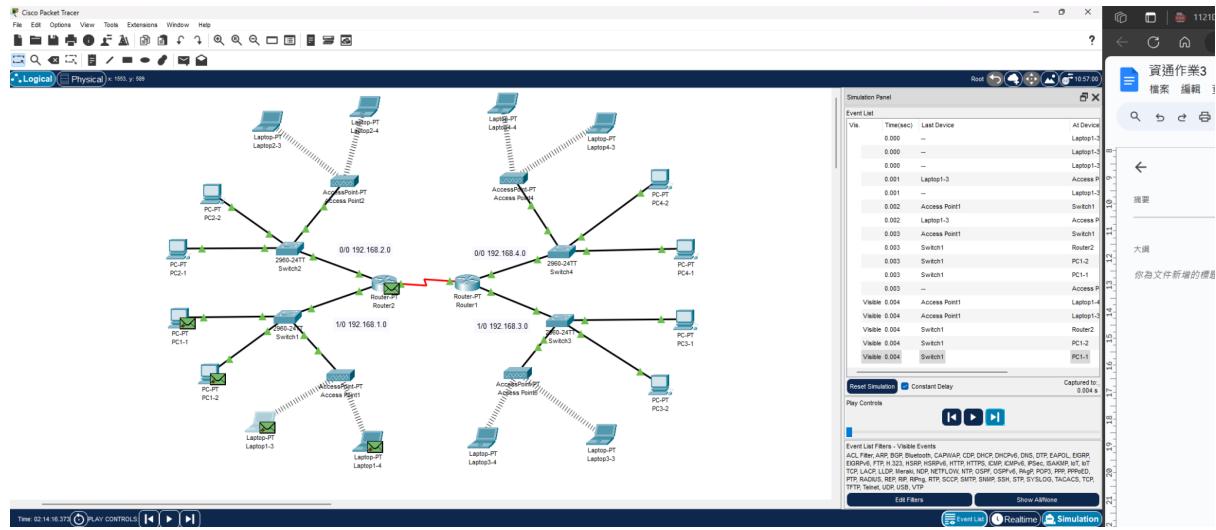
Ping statistics for 192.168.3.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 13ms, Maximum = 17ms, Average = 15ms
```

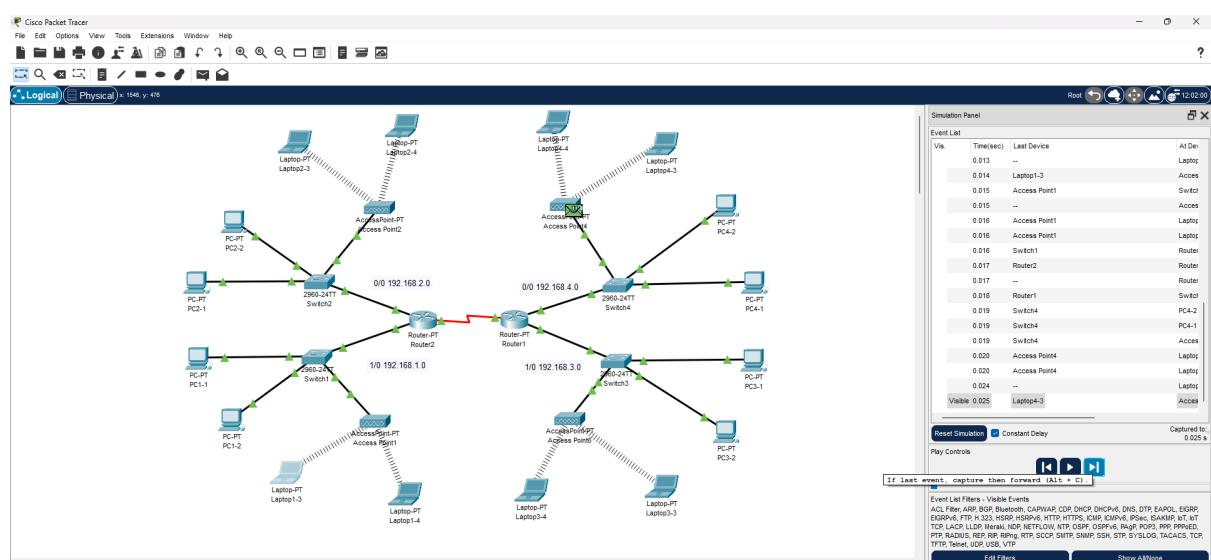
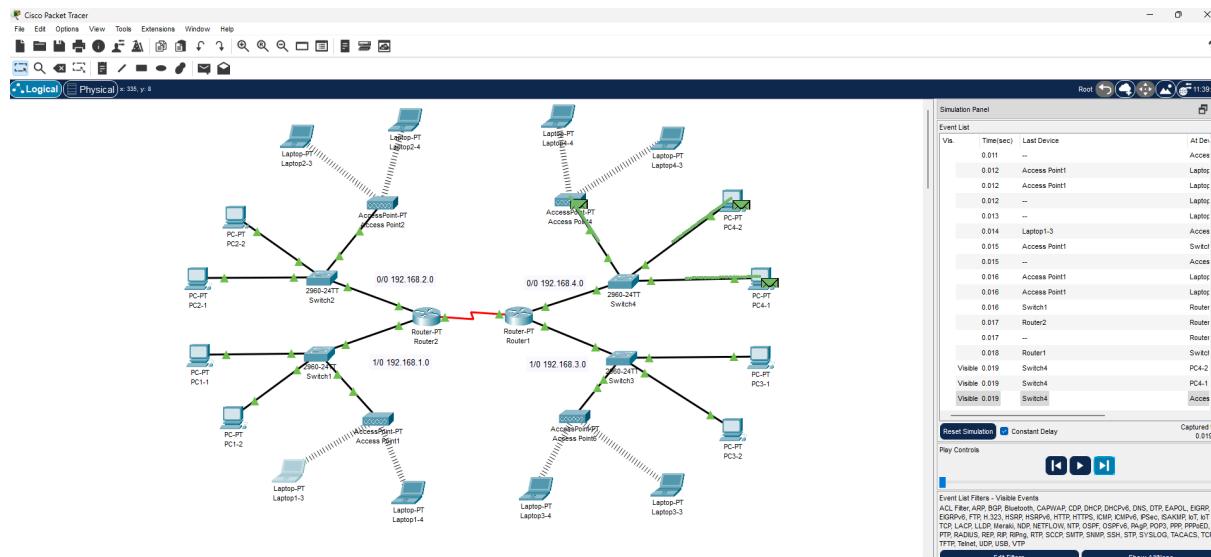
D:

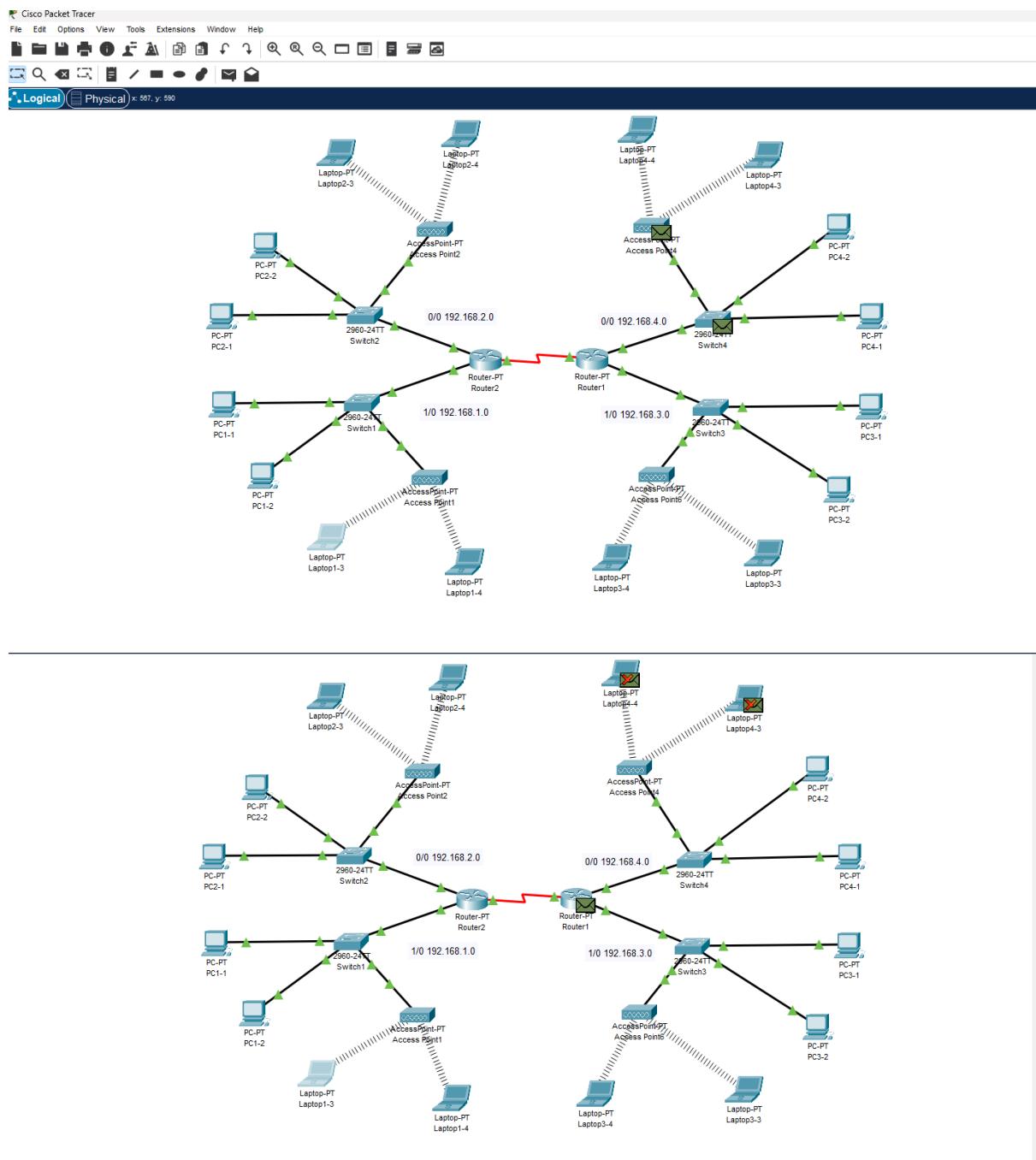
laptop1-3 ping laptop 4-3

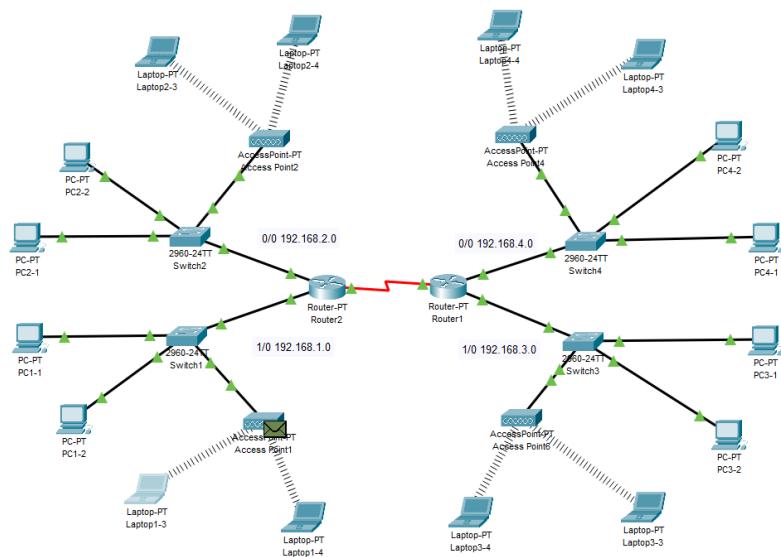
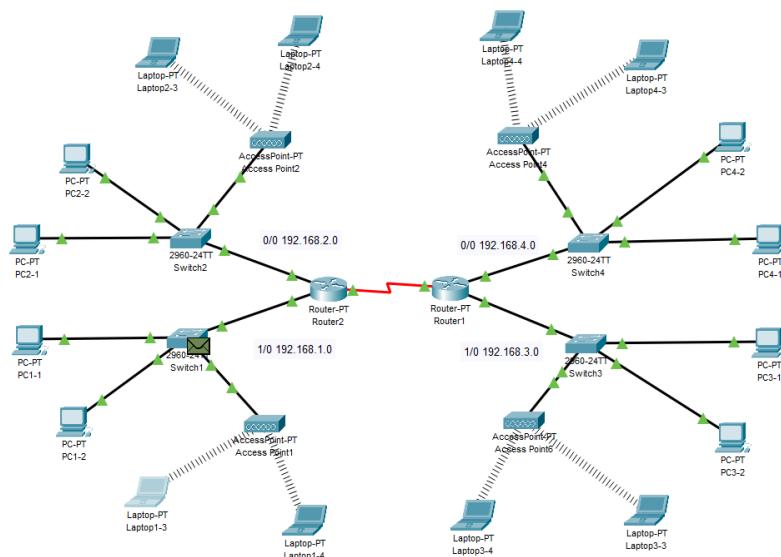
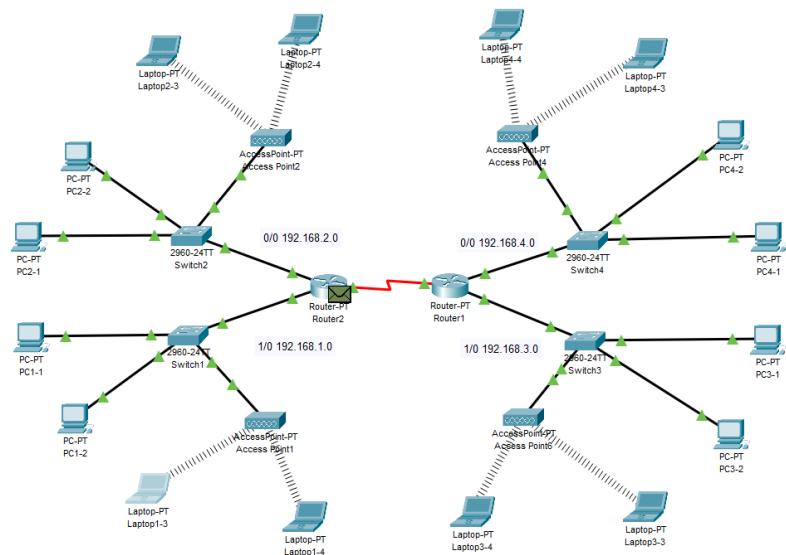


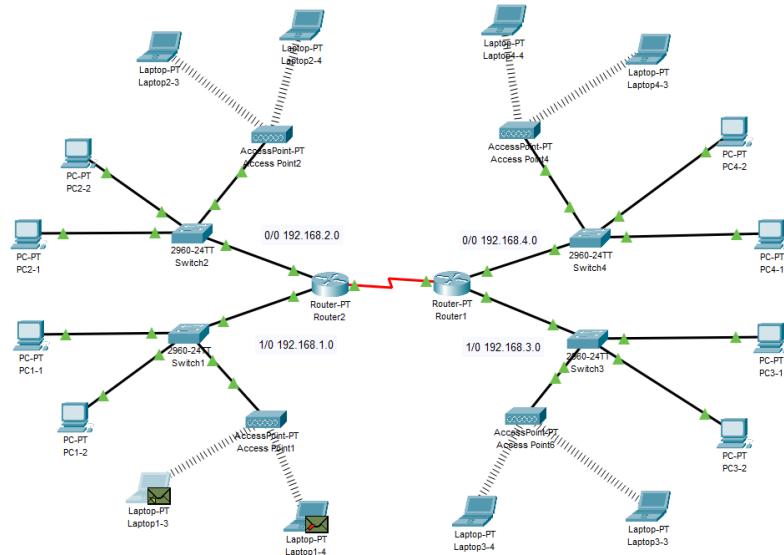












```
Pinging 192.168.4.4 with 32 bytes of data:
Reply from 192.168.4.4: bytes=32 time=20ms TTL=126
```

完成一次ping

Laptop1-3

Physical	Config	Desktop	Programming	Attributes
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Command Prompt

```
C:\>ping 192.168.4.4

Pinging 192.168.4.4 with 32 bytes of data:
Reply from 192.168.4.4: bytes=32 time=20ms TTL=126
Reply from 192.168.4.4: bytes=32 time=15ms TTL=126
Reply from 192.168.4.4: bytes=32 time=19ms TTL=126
Reply from 192.168.4.4: bytes=32 time=16ms TTL=126

Ping statistics for 192.168.4.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 15ms, Maximum = 20ms, Average = 17ms
```

重複4次