

CS305-2022Spring Lab9 Report

Name: Yitong WANG 11910104@mail.sustech.edu.cn

Student ID: 11910104

Lab Time: Thursday 10:20 a.m. to 12:10 p.m.

Lab Teacher: Qing WANG wangq9@mail.sustech.edu.cn

Lab SA:

- Siyu LIU 11912935@mail.sustech.edu.cn
- Xingying ZHENG 11912039@mail.sustech.edu.cn

Practice9-1: DHCP

Open wireshark and set the display filter:

```
dhcp
```

There is no packet now.



Type the following in the cmd:

```
ipconfig /release  
ipconfig /renew
```

We can see there are some DHCP packets:

正在捕获 WLAN

文件(F) 编辑(E) 视图(V) 跳转(G) 捕获(C) 分析(A) 统计(S) 电话(T) 无线(W) 工具(I) 帮助(H)

dhcp

No.	Time	Source	Destination	Protocol	Length	Info
6906	78.711502	10.26.128.169	172.18.19.31	DHCP	342	DHCP Release - Transaction ID 0xfacd66c9
7266	87.656026	0.0.0.0	255.255.255.255	DHCP	344	DHCP Discover - Transaction ID 0xac09a3f4
7347	88.854439	10.27.255.254	10.26.128.169	DHCP	342	DHCP Offer - Transaction ID 0xac09a3f4
7348	88.855272	0.0.0.0	255.255.255.255	DHCP	370	DHCP Request - Transaction ID 0xac09a3f4
7394	89.360768	10.27.255.254	10.26.128.169	DHCP	342	DHCP ACK - Transaction ID 0xac09a3f4
9786	111.306992	0.0.0.0	255.255.255.255	DHCP	364	DHCP Request - Transaction ID 0xfbc9889
9799	111.446888	10.27.255.254	10.26.128.169	DHCP	342	DHCP ACK - Transaction ID 0xfbc9889

Q1

For the DHCP request:

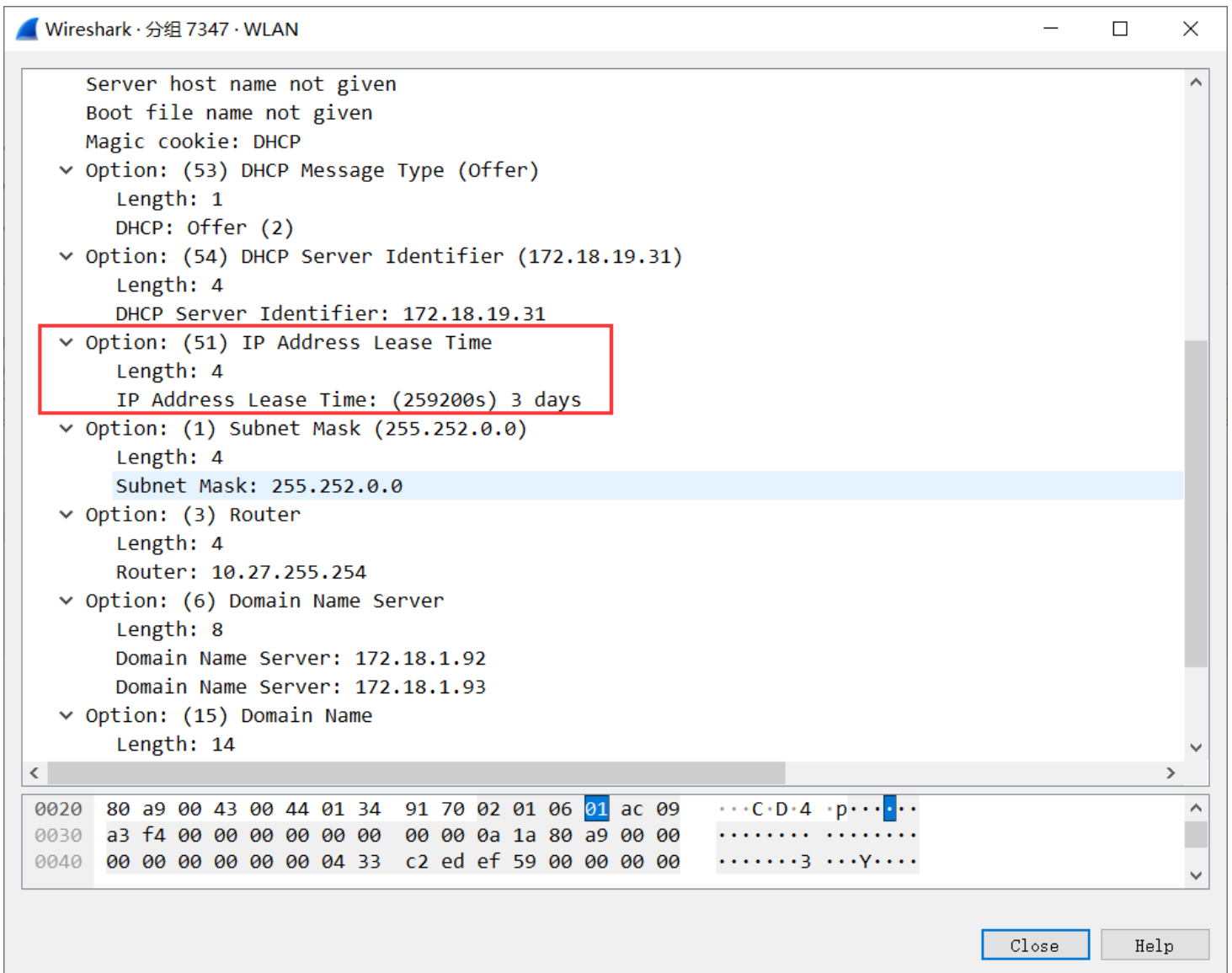
- src IP: 0.0.0.0, type: non routerable(未分配地址)
- dst IP: 255.255.255.255, type: Broadcast Address(广播地址)

Q2

It needs DNS to get the translated IP address so that it can contact with others on the Internet.

Q3

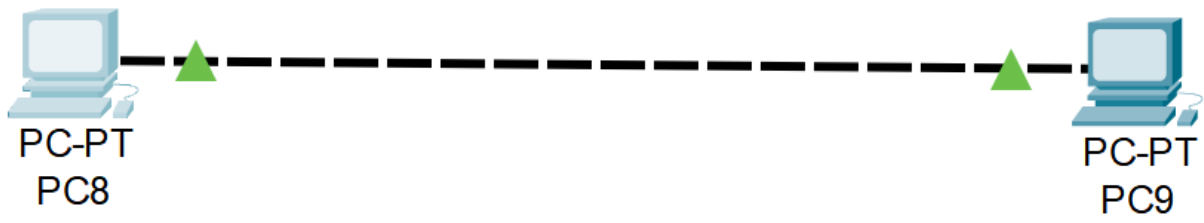
Lease Time:



Its value is 259200s. The DHCP packet type is Offer.

Practice9-2: Packet Tracer

Two PC connection



Their ip configuration:



PC8

Physical Config **Desktop** Programming Attributes

IP Configuration



Interface FastEthernet0



IP Configuration

☐ DHCP☒ Static

IPv4 Address

192.168.0.3

Subnet Mask

255.255.255.0

Default Gateway

192.168.0.1

DNS Server

0.0.0.0

IPv6 Configuration

☐ Automatic☒ Static

IPv6 Address

Link Local Address

FE80::20C:85FF:FEB5:A342

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication

MD5

Username

Password

☐ Top

PC9

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.0.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.0.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::260:70FF:FEED:54E4

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

Connection test:

Physical Config Desktop Programming Attributes

Command Prompt X

Cisco Packet Tracer PC Command Line 1.0

C:\>ping 192.168.0.3

Pinging 192.168.0.3 with 32 bytes of data:

Reply from 192.168.0.3: bytes=32 time=2ms TTL=128

Reply from 192.168.0.3: bytes=32 time=1ms TTL=128

Reply from 192.168.0.3: bytes=32 time<1ms TTL=128

Reply from 192.168.0.3: bytes=32 time<1ms TTL=128

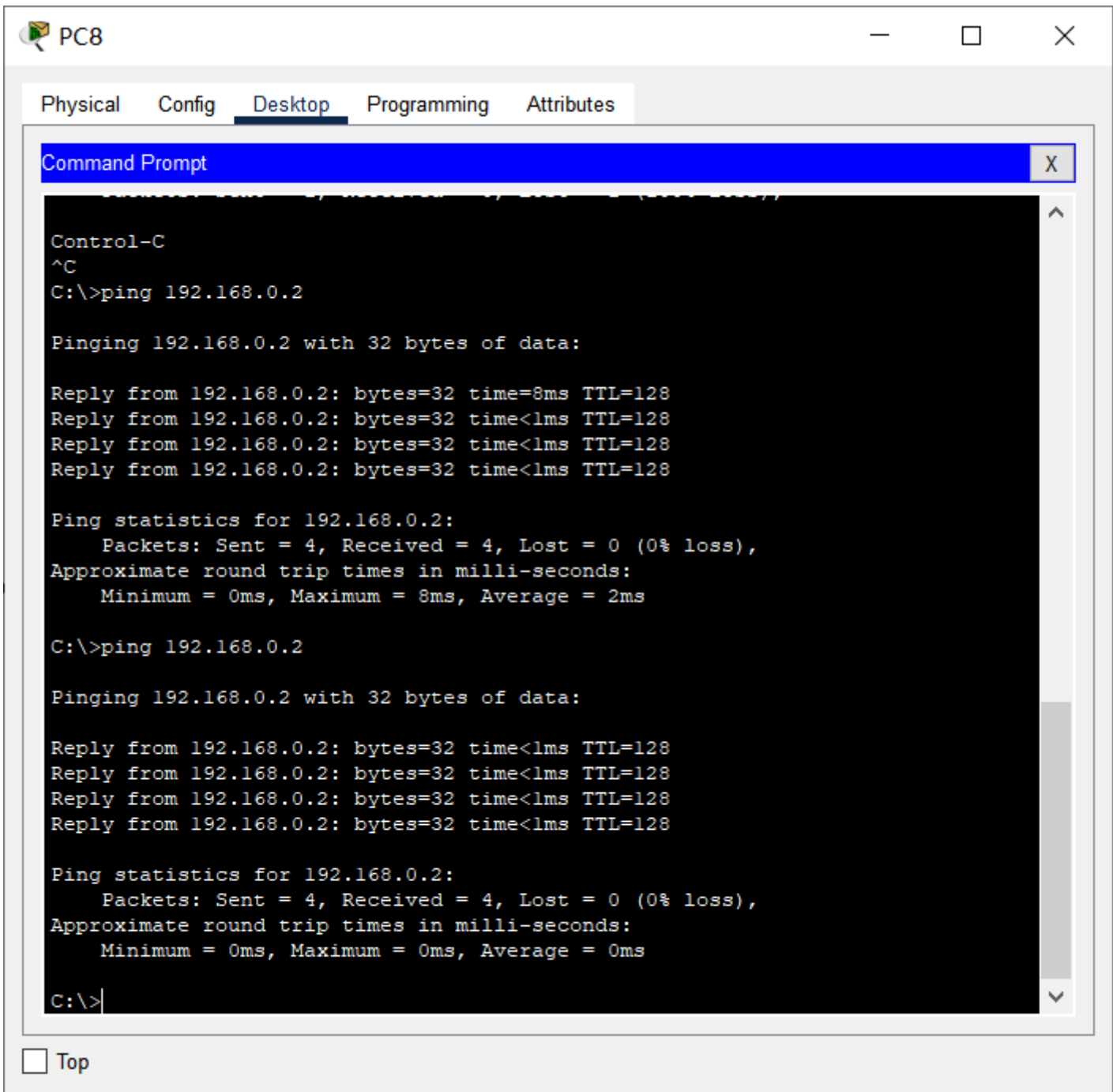
Ping statistics for 192.168.0.3:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

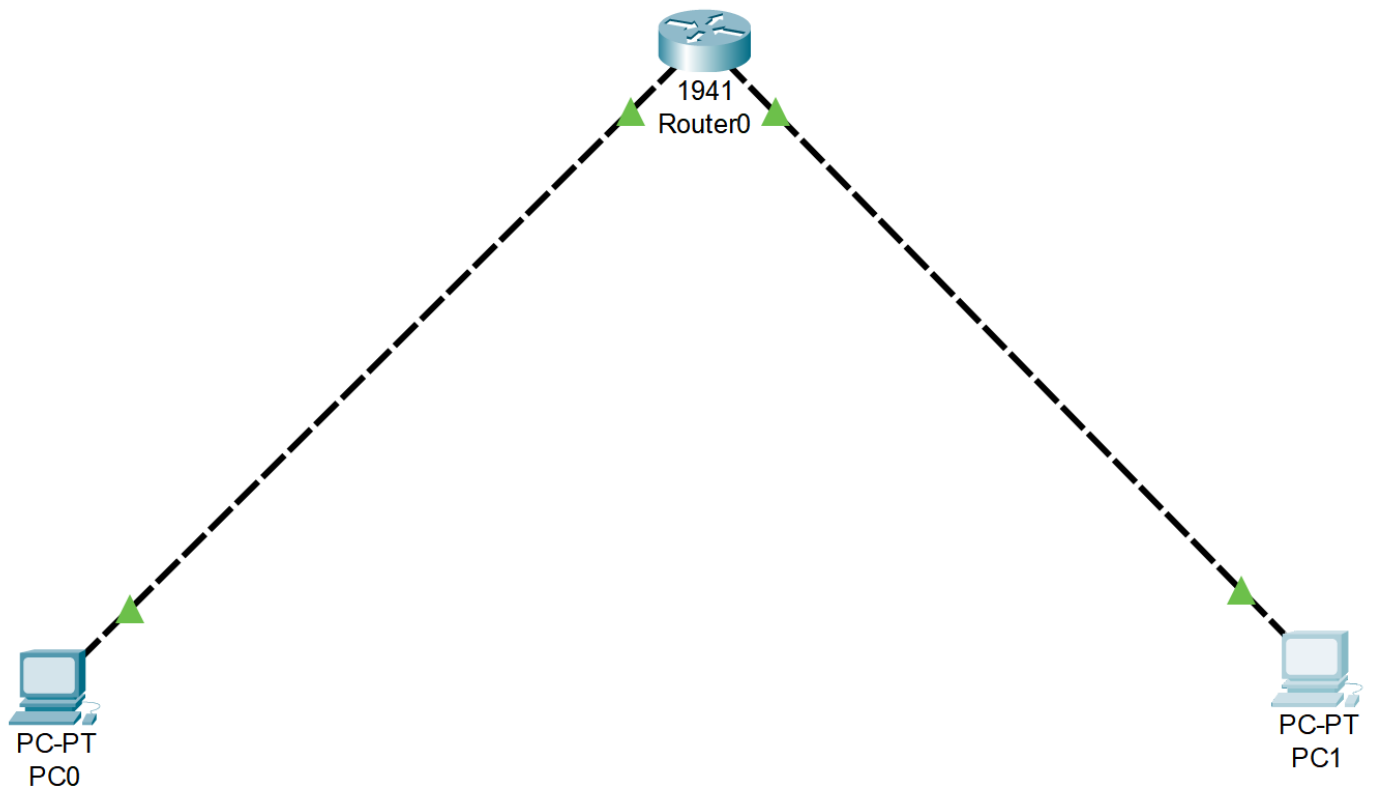
Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\>



We can see that they could reach each other.

Two PC & One Route



Their ip configuration:

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0 ▾

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.8.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.8.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::203:E4FF:FE88:82C0

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5 ▾

Username

Password

☐ Top

PC1

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.10.5

Subnet Mask 255.255.255.0

Default Gateway 192.168.10.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::20C:CFFF:FE1A:BCCA

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

Router configuration:

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/0

Port Status

☒ On

Bandwidth

☐ 1000 Mbps ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex

☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address

0004.9A79.2E01

IP Configuration

IPv4 Address

192.168.8.1

Subnet Mask

255.255.255.0

Tx Ring Limit

10

Equivalent IOS Commands

```
Router (config)#interface GigabitEthernet0/0
Router (config-if)#
Router (config-if)#
Router (config-if)#exit
Router (config)#interface GigabitEthernet0/0
Router (config-if)#
Router (config-if)#
Router (config-if)#exit
Router (config)#interface GigabitEthernet0/0
Router (config-if)#
```

Router0

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/1

Port Status

☒ On

Bandwidth

☐ 1000 Mbps ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex

☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address0004.9A79.2E02

IP Configuration

IPv4 Address192.168.10.1

Subnet Mask255.255.255.0

Tx Ring Limit10

Equivalent IOS Commands

Router (config)#interface GigabitEthernet0/0

Router (config-if)#

Router (config-if)#

Router (config-if)#exit

Router (config)#interface GigabitEthernet0/0

Router (config-if)#

Router (config-if)#exit

Router (config)#interface GigabitEthernet0/1

Router (config-if)#

☐ Top

- PCs & Router connection test

Physical Config Desktop Programming Attributes

Command Prompt X

```
C:\>192.168.10.1
Invalid Command.

C:\>ping 192.168.10.1

Pinging 192.168.10.1 with 32 bytes of data:

Reply from 192.168.10.1: bytes=32 time<1ms TTL=255
Reply from 192.168.10.1: bytes=32 time<1ms TTL=255
Reply from 192.168.10.1: bytes=32 time<1ms TTL=255
Reply from 192.168.10.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.10.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.8.1

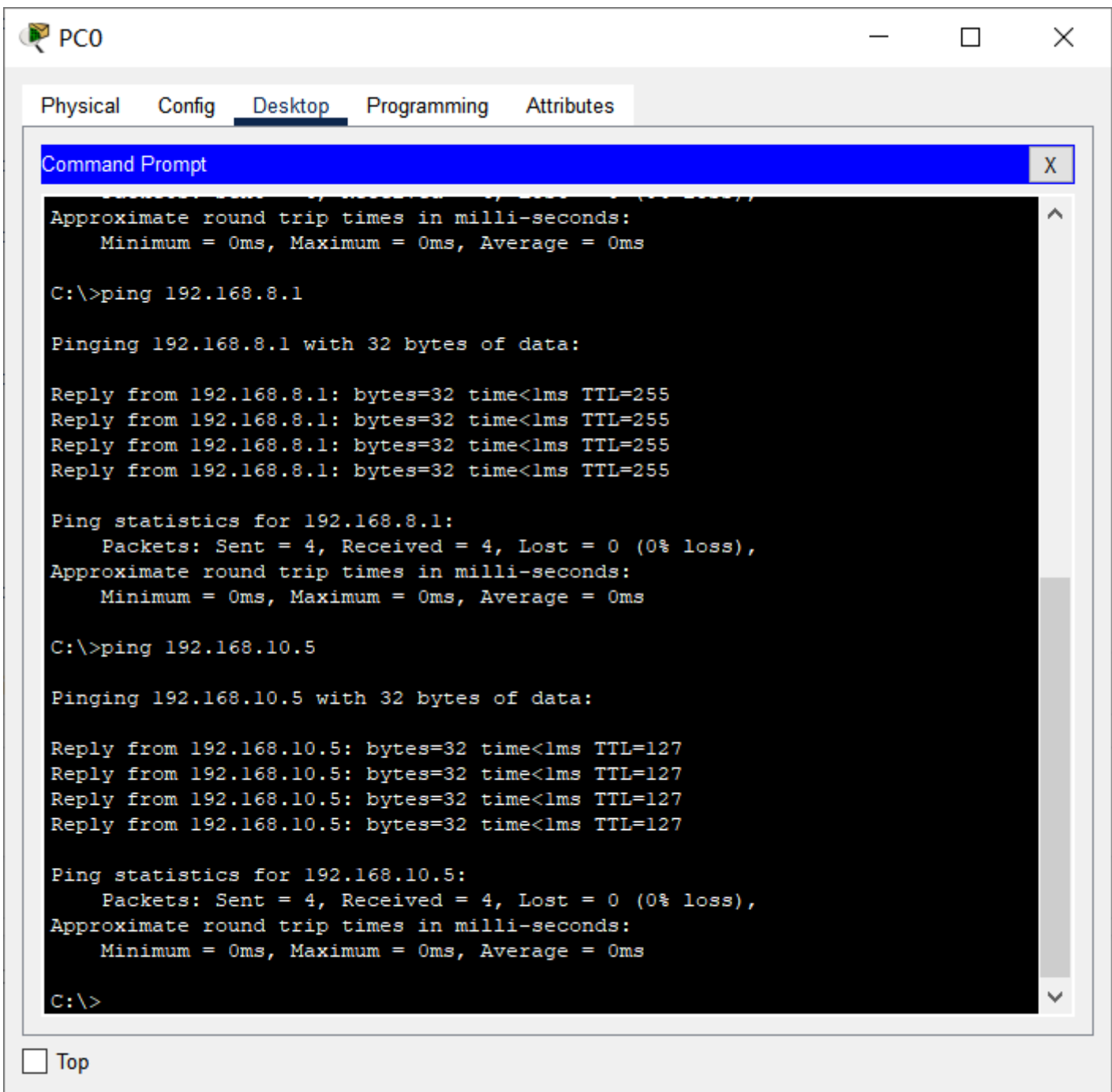
Pinging 192.168.8.1 with 32 bytes of data:

Reply from 192.168.8.1: bytes=32 time<1ms TTL=255
Reply from 192.168.8.1: bytes=32 time<1ms TTL=255
Reply from 192.168.8.1: bytes=32 time<1ms TTL=255
Reply from 192.168.8.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.8.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

☐ Top



The PC can contact with the routers correctly.

- Two PC connection test

Physical Config Desktop Programming Attributes

Command Prompt X

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.0.3

Pinging 192.168.0.3 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.0.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>192.168.10.1
Invalid Command.

C:\>ping 192.168.10.1

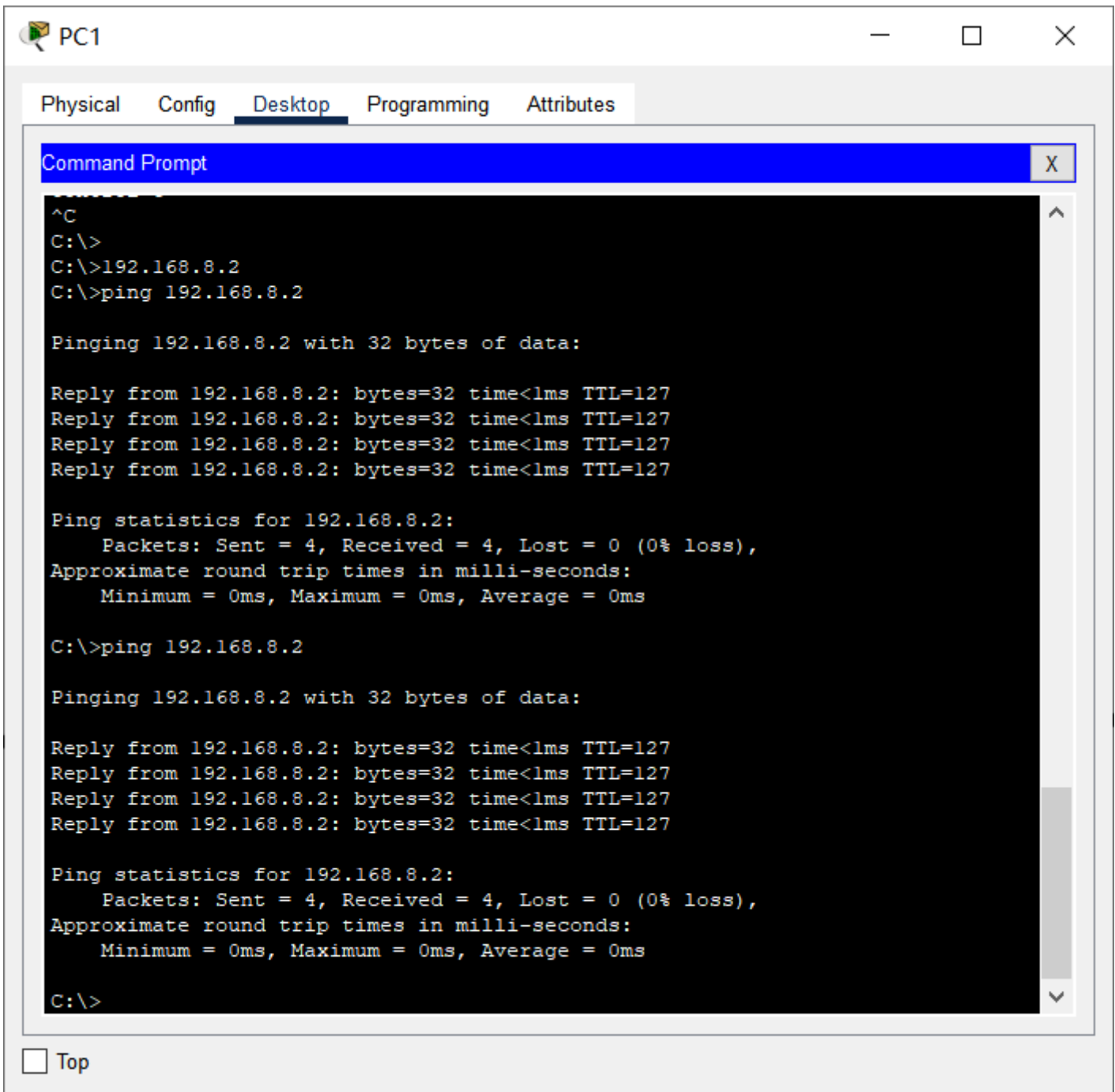
Pinging 192.168.10.1 with 32 bytes of data:

Reply from 192.168.10.1: bytes=32 time<1ms TTL=255
Reply from 192.168.10.1: bytes=32 time<1ms TTL=255
Reply from 192.168.10.1: bytes=32 time<1ms TTL=255
Reply from 192.168.10.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.10.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>|
```

☐ Top



We can see that they could communicate with each other.