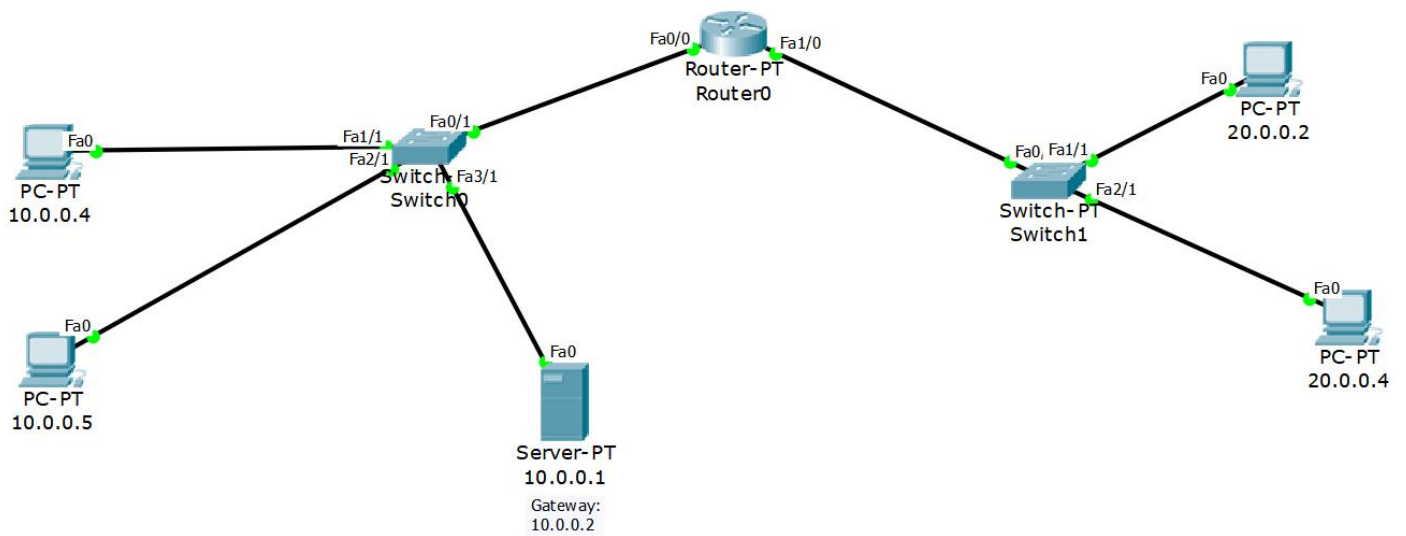


## Experiment - 4 (a)

### Topology:



### Server Configuration:

The screenshot shows the configuration window for the server 10.0.0.1. The window has tabs for Physical, Config, Services, Desktop, and Custom Interface. The Config tab is active, showing the following settings:

- GLOBAL** (selected in the left sidebar)
- Settings**
- Algorithm Setting:**
- INTERFACE** (selected in the left sidebar)
- FastEthernet0** (selected in the left sidebar)
- Global Settings**
- Display Name:** 10.0.0.1
- Interfaces:** FastEthernet0
- Gateway/DNS**
  - ☐ DHCP
  - ☒ Static
  - Gateway:** 10.0.0.2
  - DNS Server:**
- Gateway/DNS IPv6**
  - ☐ DHCP
  - ☐ Auto Config
  - ☒ Static
  - IPv6 Gateway:**
  - IPv6 DNS Server:**

10.0.0.1

PhysicalConfigServicesDesktopCustom Interface

GLOBAL

Settings

Algorithm Setting:

INTERFACE

FastEthernet0

FastEthernet0

Port Status ☒ On  
Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto  
Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto  
MAC Address 0050.0FD5.2C1B  

IP Configuration

☐ DHCP  
☒ Static  
IP Address 10.0.0.1  
Subnet Mask 255.0.0.0

IPv6 Configuration

☐ DHCP  
☐ Auto Config  
☒ Static  
IPv6 Address /  
Link Local Address: E80::250:FFF:FED5:2C1B

10.0.0.1

PhysicalConfigServicesDesktopCustom Interface

SERVICES

HTTP  
DHCP  
DHCPv6  
TFTP  
DNS  
SYSLOG  
AAA  
NTP  
EMAIL  
FTP

DHCP

Interface FastEthernet0 Service ☒ On ☐ Off  

Pool Name serverPool  
Default Gateway 10.0.0.2  
DNS Server 0.0.0.0  
Start IP Address : 10 0 0 3  
Subnet Mask: 255 0 0 0  
Maximum number of Users : 512  
TFTP Server: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max Users	TFTP
serve...	20.0.0.1	0.0.0.0	20.0.0.2	255.0....	512	0.0.0.0
serve...	10.0.0.2	0.0.0.0	10.0.0.3	255.0....	512	0.0.0.0

10.0.0.1

PhysicalConfigServicesDesktopCustom Interface

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

DHCP

InterfaceFastEthernet0ServiceOnOff

Pool Name

serverPool - 2

Default Gateway

20.0.0.1

DNS Server

0.0.0.0

Start IP Address :

20002

Subnet Mask:

255000

Maximum number of Users :

512

TFTP Server:

0.0.0.0

Add

Save

Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max Users	TFTP Server
serverPool - 2	20.0.0.1	0.0.0.0	20.0.0.2	255.0.0.0	512	0.0.0.0
serverPool - 1	10.0.0.2	0.0.0.0	10.0.0.3	255.0.0.0	512	0.0.0.0

## PC - 1 Configuration(Through DHCP):

10.0.0.4

Physical Config Desktop Custom Interface

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

### Global Settings

Display Name 10.0.0.4

**Gateway/DNS**

☒ DHCP

☐ Static

Gateway 10.0.0.2

DNS Server 0.0.0.0

**Gateway/DNS Ipv6**

☒ DHCP

☐ Auto Config

☐ Static

IPv6 Gateway

IPv6 DNS Server

10.0.0.4

Physical Config Desktop Custom Interface

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

### FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 00E0.F971.D577

**IP Configuration**

☒ DHCP

☐ Static

IP Address 10.0.0.4

Subnet Mask 255.0.0.0

**IPv6 Configuration**

☒ DHCP

☐ Auto Config

☐ Static

IPv6 Address /

Link Local Address: 30::2E0:F9FF:FE71:D577

## PC - 2 Configuration (Through DHCP):

The screenshot shows a configuration window titled "10.0.0.5" with tabs for Physical, Config, Desktop, and Custom Interface. The left sidebar has a tree view with "GLOBAL" (containing "Settings" and "Algorithm Settings") and "INTERFACE" (containing "FastEthernet0"). The main area is titled "Global Settings" and contains the following fields:

- Display Name: 10.0.0.5
- Gateway/DNS:
  - ☒ DHCP
  - ☐ Static
  - Gateway: 10.0.0.2
  - DNS Server: 0.0.0.0
- Gateway/DNS Ipv6:
  - ☒ DHCP
  - ☐ Auto Config
  - ☐ Static
  - IPv6 Gateway: (empty)
  - IPv6 DNS Server: (empty)

The screenshot shows the same configuration window with the "FastEthernet0" interface selected in the sidebar. The main area is titled "FastEthernet0" and contains the following fields:

- Port Status: ☒ On
- Bandwidth: ☒ 100 Mbps ☐ 10 Mbps ☒ Auto
- Duplex: ☐ Half Duplex ☒ Full Duplex ☒ Auto
- MAC Address: 0030.F23D.829B
- IP Configuration:
  - ☒ DHCP
  - ☐ Static
  - IP Address: 10.0.0.5
  - Subnet Mask: 255.0.0.0
- IPv6 Configuration:
  - ☒ DHCP
  - ☐ Auto Config
  - ☐ Static
  - IPv6 Address: (empty) / (empty)
  - Link Local Address: 30::230:F2FF:FE3D:829B



## PC - 3 Configuration (Through DHCP):

20.0.0.2

Physical Config Desktop Custom Interface

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

### Global Settings

Display Name 20.0.0.2

**Gateway/DNS**

☒ DHCP  
☐ Static

Gateway 20.0.0.1

DNS Server 0.0.0.0

**Gateway/DNS Ipv6**

☒ DHCP  
☐ Auto Config  
☐ Static

IPv6 Gateway

IPv6 DNS Server

20.0.0.2

Physical Config Desktop Custom Interface

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

### FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0004.9A09.7A41

**IP Configuration**

☒ DHCP  
☐ Static

IP Address 20.0.0.2

Subnet Mask 255.0.0.0

**IPv6 Configuration**

☒ DHCP  
☐ Auto Config  
☐ Static

IPv6 Address /

Link Local Address: 30::204:9AFF:FE09:7A41

## PC - 4 Configuration (Through DHCP):

20.0.0.4

Physical Config Desktop Custom Interface

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

### Global Settings

Display Name 20.0.0.4

Gateway/DNS

☒ DHCP

☐ Static

Gateway 20.0.0.1

DNS Server 0.0.0.0

Gateway/DNS Ipv6

☒ DHCP

☐ Auto Config

☐ Static

IPv6 Gateway

IPv6 DNS Server

20.0.0.4

Physical Config Desktop Custom Interface

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

### FastEthernet0

Port Status ☒ On

Bandwidth ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0004.9AE2.3122

IP Configuration

☒ DHCP

☐ Static

IP Address 20.0.0.4

Subnet Mask 255.0.0.0

IPv6 Configuration

☒ DHCP

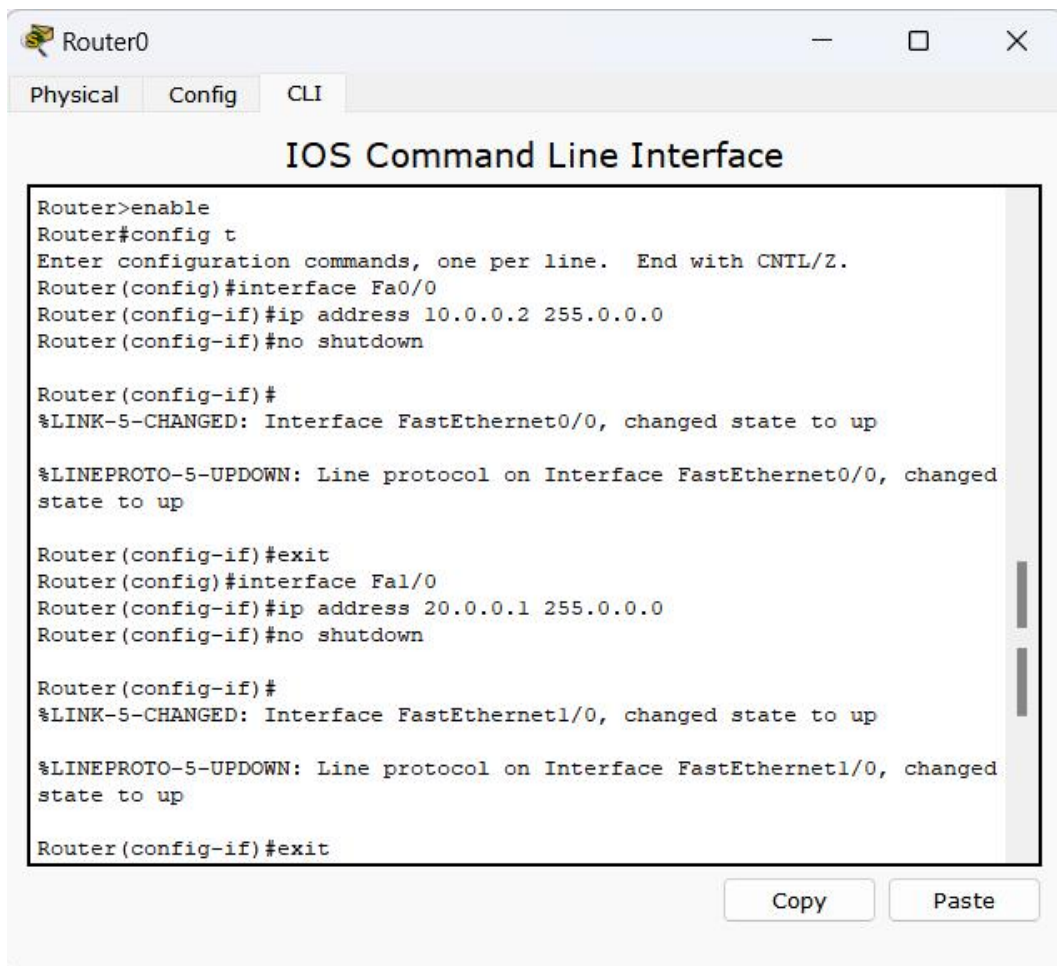
☐ Auto Config

☐ Static

IPv6 Address /

Link Local Address: 80::204:9AFF:FEE2:3122

## Router Configuration:



The screenshot shows a window titled "Router0" with tabs for "Physical", "Config", and "CLI". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal text shows the following sequence of commands and responses:

```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface Fa0/0
Router(config-if)#ip address 10.0.0.2 255.0.0.0
Router(config-if)#no shutdown

Router(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

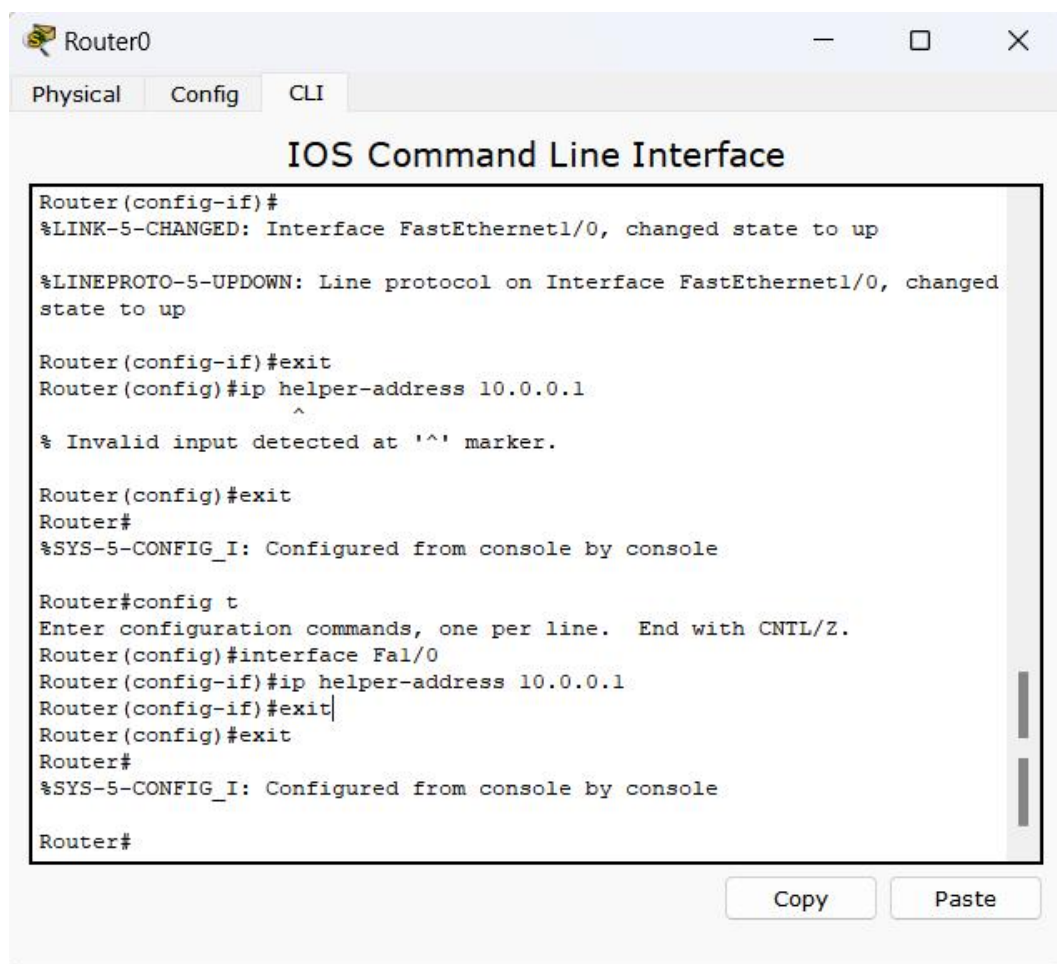
Router(config-if)#exit
Router(config)#interface Fa1/0
Router(config-if)#ip address 20.0.0.1 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed
state to up

Router(config-if)#exit
```

At the bottom right of the terminal area, there are "Copy" and "Paste" buttons.



The screenshot shows a window titled "Router0" with tabs for "Physical", "Config", and "CLI". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal text shows the following sequence of commands and responses:

```
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed
state to up

Router(config-if)#exit
Router(config)#ip helper-address 10.0.0.1
^
% Invalid input detected at '^' marker.

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

Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface Fa1/0
Router(config-if)#ip helper-address 10.0.0.1
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

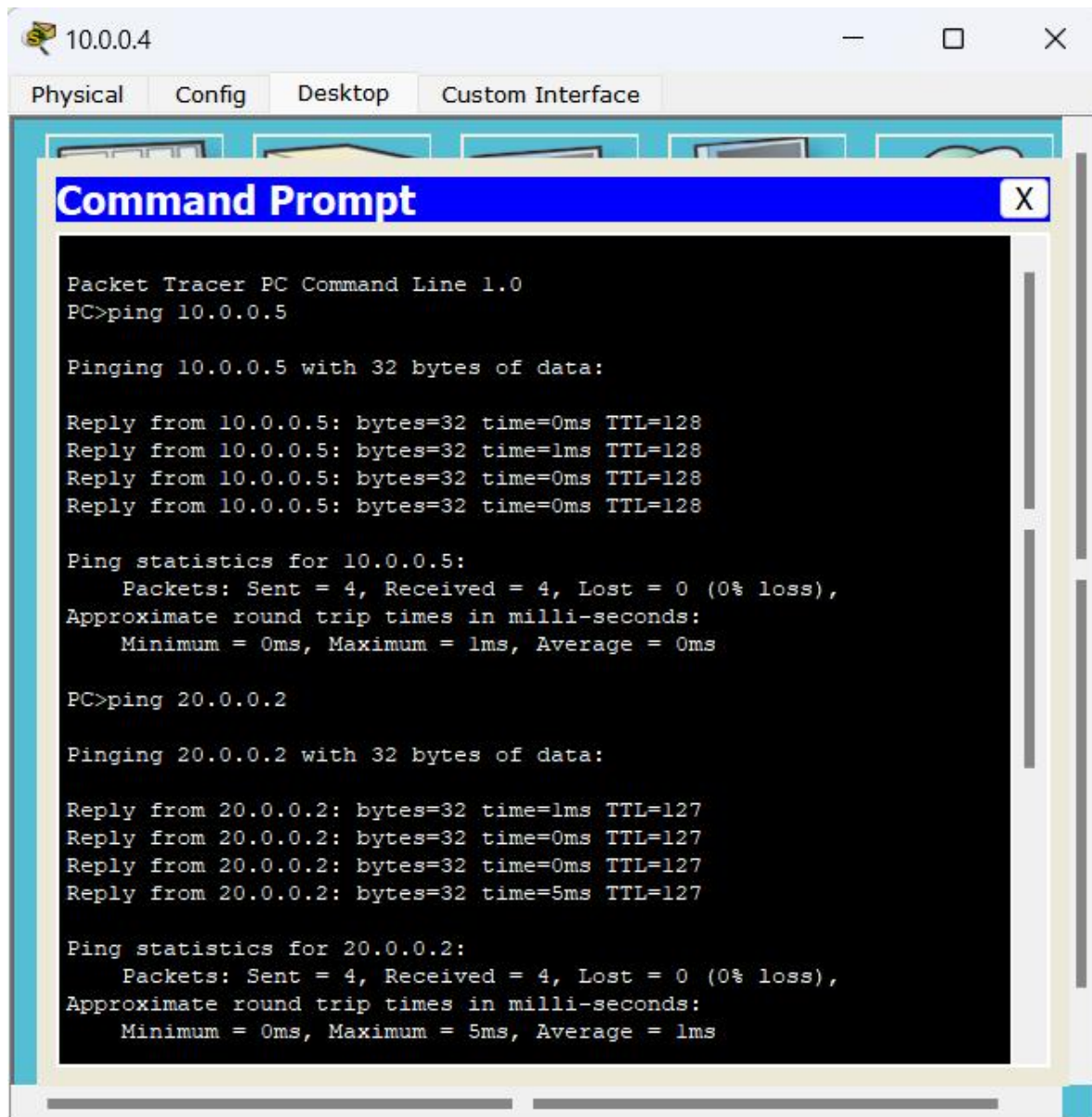
Router#
```

At the bottom right of the terminal area, there are "Copy" and "Paste" buttons.



## Output (Ping Messages):

### From PC1 to All other PCs:



The screenshot shows a Packet Tracer PC Command Prompt window for PC 10.0.0.4. The window has tabs for Physical, Config, Desktop, and Custom Interface. The Command Prompt displays the output of two ping commands: 'ping 10.0.0.5' and 'ping 20.0.0.2'. Each command shows four successful replies with 32 bytes of data, 0ms time, and a TTL of 128 or 127. Ping statistics for each target show 4 packets sent, 4 received, and 0% loss.

```
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.5

Pinging 10.0.0.5 with 32 bytes of data:

Reply from 10.0.0.5: bytes=32 time=0ms TTL=128
Reply from 10.0.0.5: bytes=32 time=1ms TTL=128
Reply from 10.0.0.5: bytes=32 time=0ms TTL=128
Reply from 10.0.0.5: bytes=32 time=0ms TTL=128

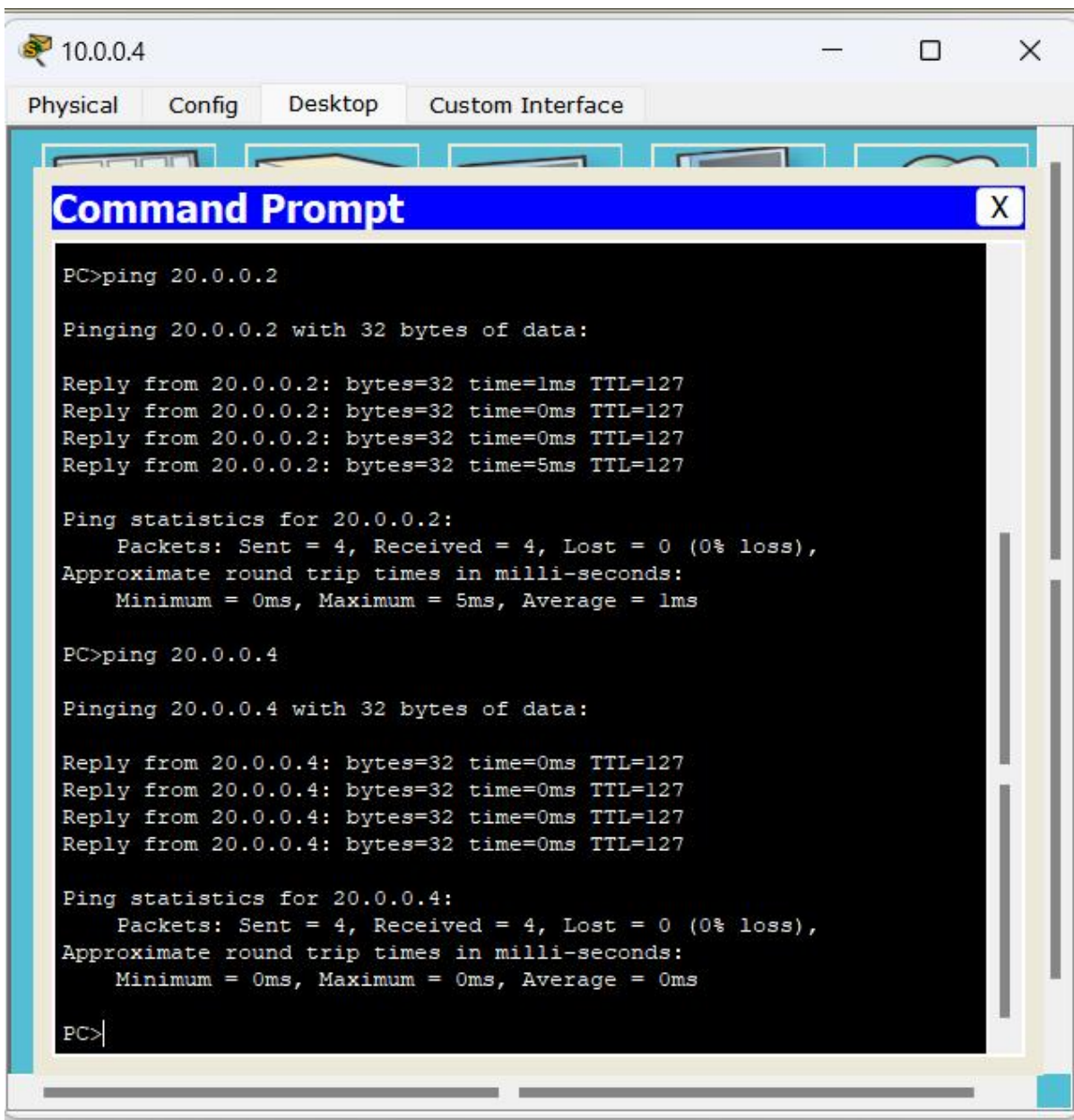
Ping statistics for 10.0.0.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

PC>ping 20.0.0.2

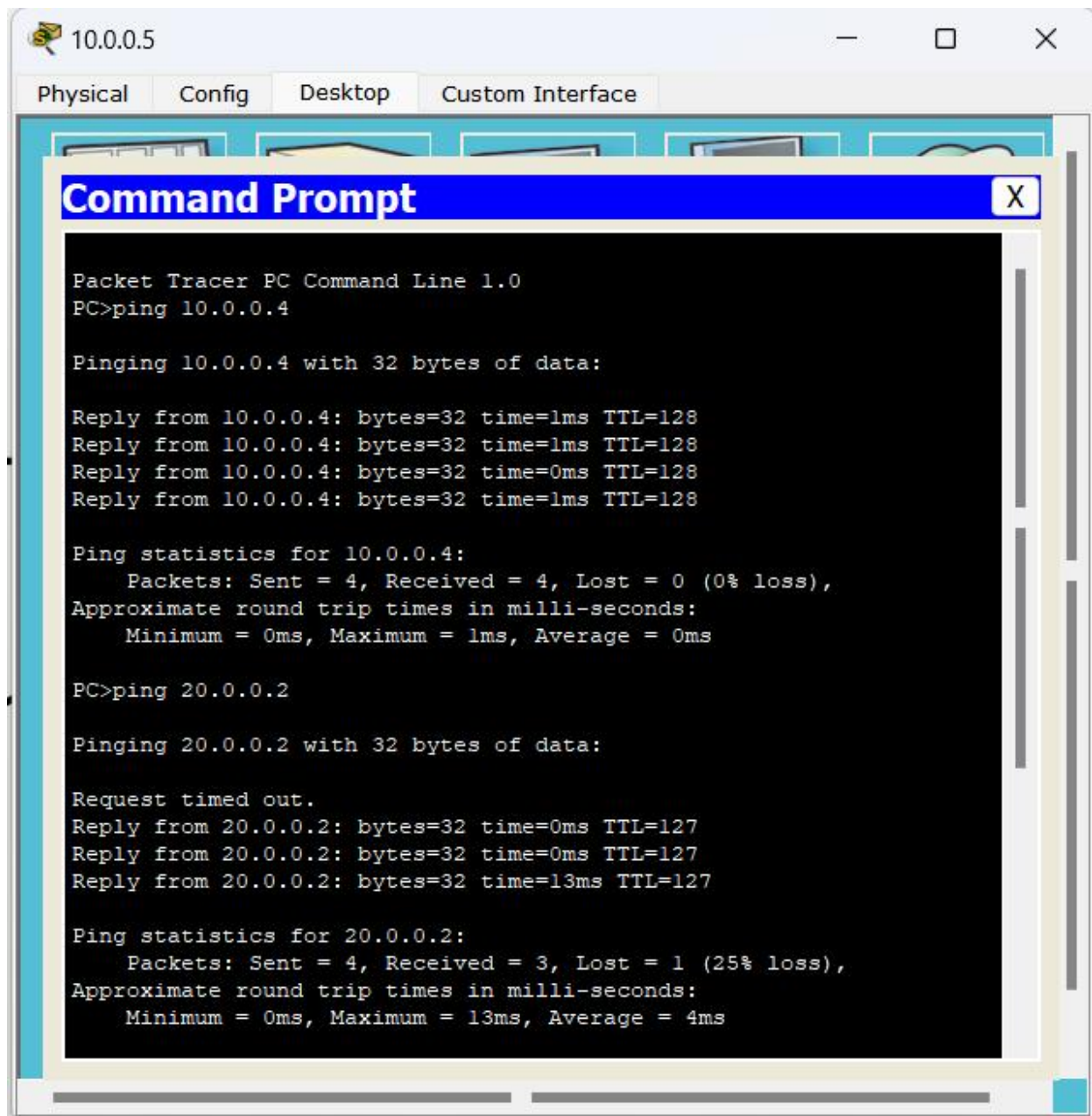
Pinging 20.0.0.2 with 32 bytes of data:

Reply from 20.0.0.2: bytes=32 time=1ms TTL=127
Reply from 20.0.0.2: bytes=32 time=0ms TTL=127
Reply from 20.0.0.2: bytes=32 time=0ms TTL=127
Reply from 20.0.0.2: bytes=32 time=5ms TTL=127

Ping statistics for 20.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 5ms, Average = 1ms
```



From PC2 to All other PCs:



The screenshot shows a Packet Tracer PC Command Line window for PC 10.0.0.5. The window has tabs for Physical, Config, Desktop, and Custom Interface. The Desktop tab is active, displaying a Command Prompt window. The Command Prompt shows the following text:

```
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.4

Pinging 10.0.0.4 with 32 bytes of data:

Reply from 10.0.0.4: bytes=32 time=1ms TTL=128
Reply from 10.0.0.4: bytes=32 time=1ms TTL=128
Reply from 10.0.0.4: bytes=32 time=0ms TTL=128
Reply from 10.0.0.4: bytes=32 time=1ms TTL=128

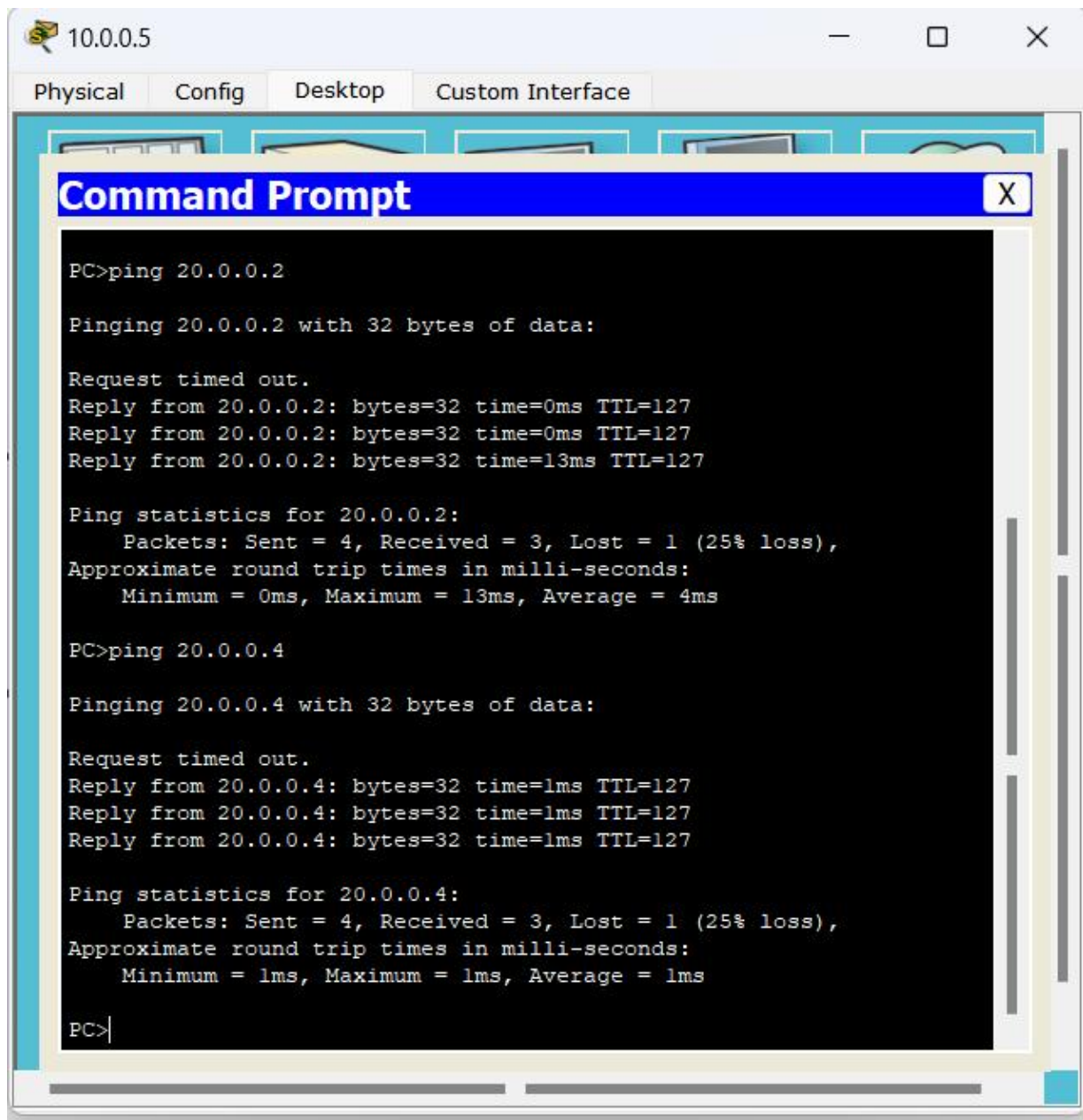
Ping statistics for 10.0.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

PC>ping 20.0.0.2

Pinging 20.0.0.2 with 32 bytes of data:

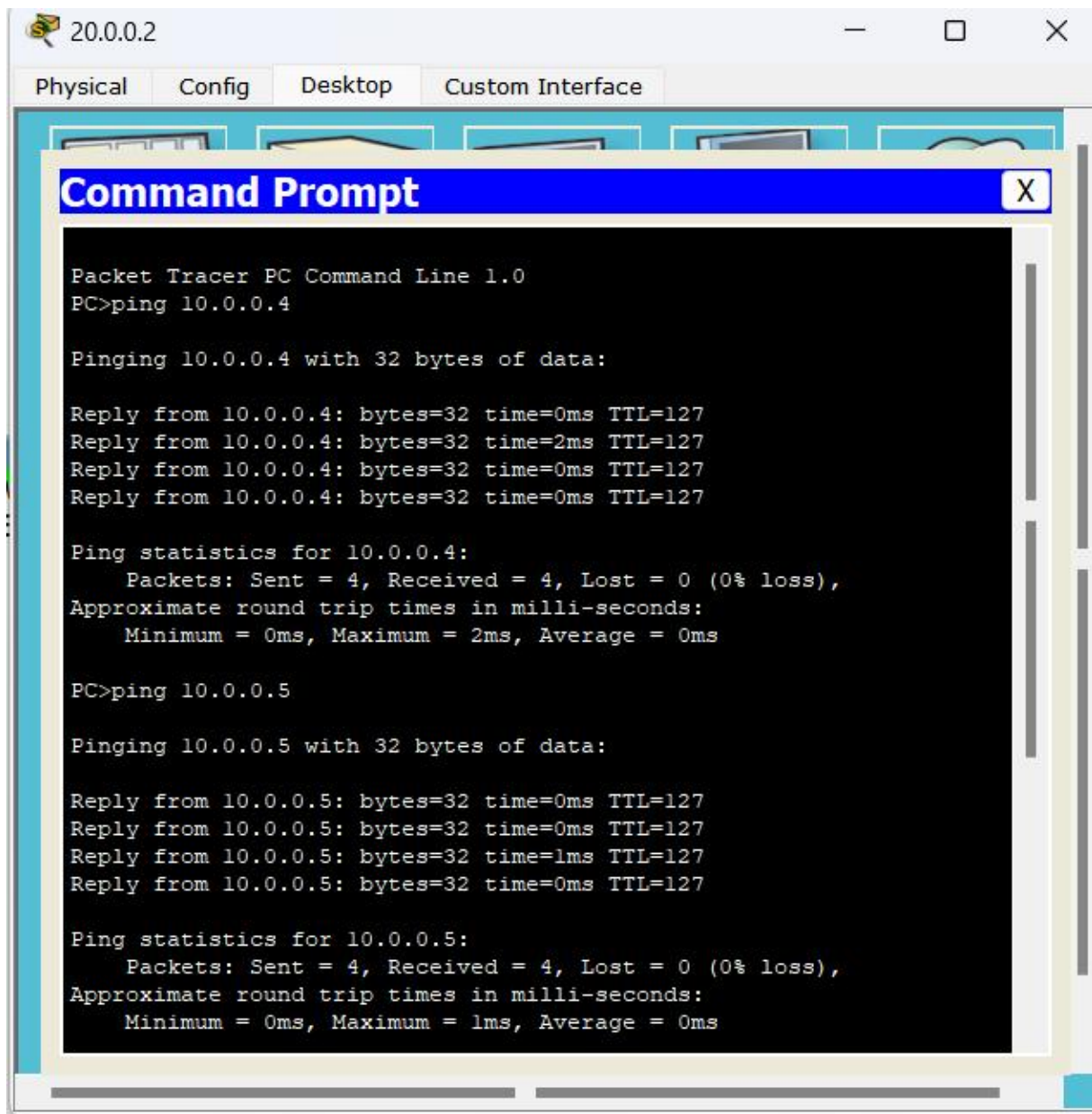
Request timed out.
Reply from 20.0.0.2: bytes=32 time=0ms TTL=127
Reply from 20.0.0.2: bytes=32 time=0ms TTL=127
Reply from 20.0.0.2: bytes=32 time=13ms TTL=127

Ping statistics for 20.0.0.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 13ms, Average = 4ms
```

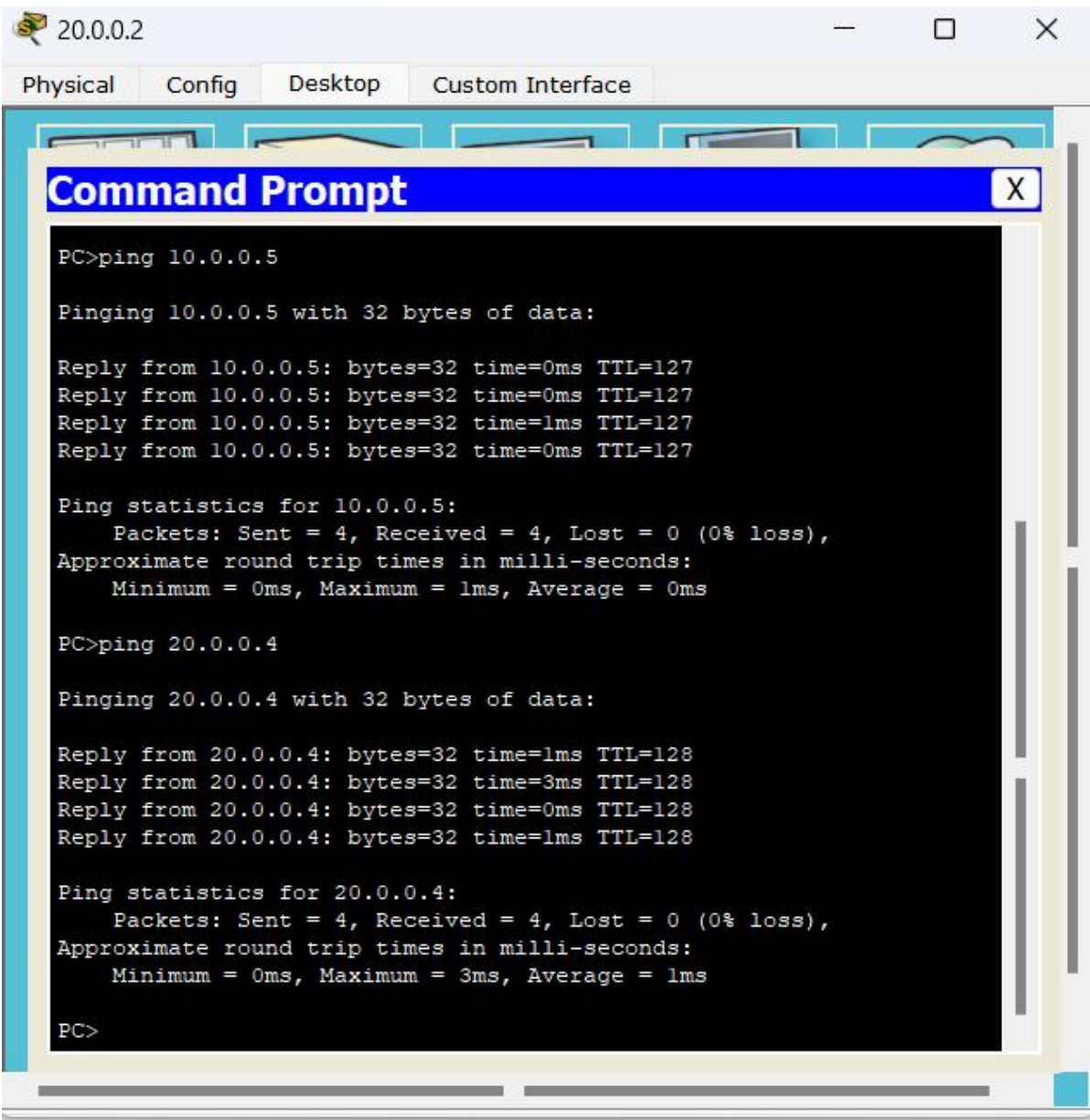




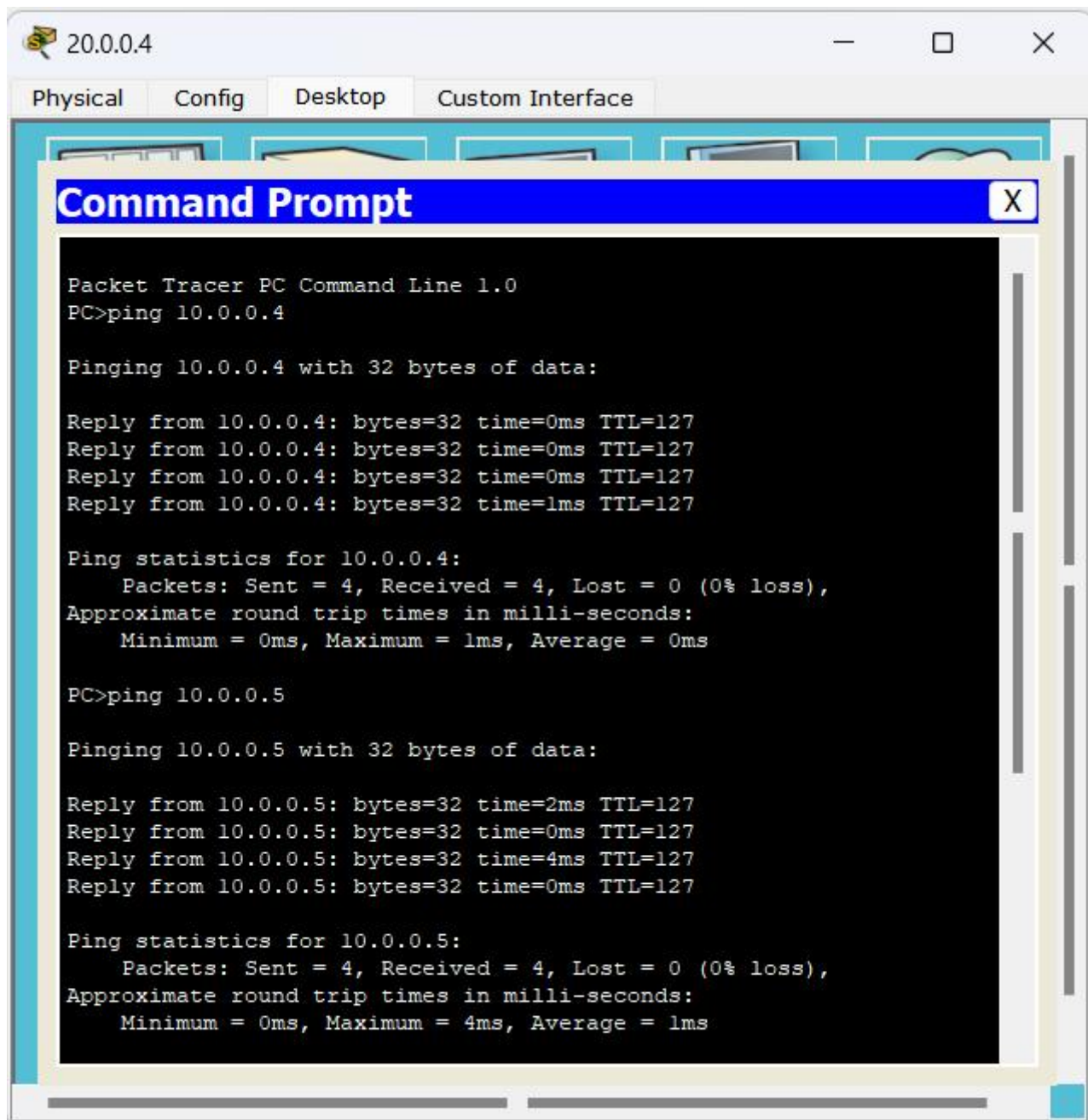
## From PC3 to All other PCs:







## From PC4 to All other PCs:



The screenshot shows a Packet Tracer PC Command Line window for PC 20.0.0.4. The window has tabs for Physical, Config, Desktop, and Custom Interface. The Desktop tab is active, displaying a Command Prompt window. The Command Prompt shows the execution of two ping commands: 'ping 10.0.0.4' and 'ping 10.0.0.5'. Each command is followed by a detailed response showing four successful replies with 32 bytes of data, a TTL of 127, and various round trip times. Ping statistics for each destination are also displayed, showing 4 packets sent, 4 received, and 0% loss.

```
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.4

Pinging 10.0.0.4 with 32 bytes of data:

Reply from 10.0.0.4: bytes=32 time=0ms TTL=127
Reply from 10.0.0.4: bytes=32 time=0ms TTL=127
Reply from 10.0.0.4: bytes=32 time=0ms TTL=127
Reply from 10.0.0.4: bytes=32 time=1ms TTL=127

Ping statistics for 10.0.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

PC>ping 10.0.0.5

Pinging 10.0.0.5 with 32 bytes of data:

Reply from 10.0.0.5: bytes=32 time=2ms TTL=127
Reply from 10.0.0.5: bytes=32 time=0ms TTL=127
Reply from 10.0.0.5: bytes=32 time=4ms TTL=127
Reply from 10.0.0.5: bytes=32 time=0ms TTL=127

Ping statistics for 10.0.0.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 4ms, Average = 1ms
```

