

Лабораторная работа №1  
по дисциплине «Компьютерные сети»  
Вариант IV

Студентка: Ишкова-Запольская О.О.

Группа: ИУ7-63БВ

Преподаватель: Рогозин Н.О.

# 1. Присвоить портам устройств статические ipv4 адреса в соответствии с вариантом.

PC0

Physical Config Desktop Programming Attributes

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

Bluetooth

FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0001.6388.853A

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.1.4.1

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::201:63FF:FE88:853A

PC1

Physical Config Desktop Programming Attributes

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

Bluetooth

FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0001.C9B7.8137

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.1.4.2

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::201:C9FF:FE87:8137

Physical **Config** Desktop Programming Attributes

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

Bluetooth

**FastEthernet0**

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0001.6413.D1C2

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.1.4.3

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::201:64FF:FE13:D1C2

Physical **Config** Services Desktop Programming Attributes

**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.F7CE.C728

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 192.168.4.4

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::2E0:F7FF:FECE:C728

Physical **Config** Services Desktop Programming Attributes

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

**FastEthernet0**

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 000A.F38E.AE8B

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 172.16.4.5

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::20A:F3FF:FE8E:AE8B

Physical **Config** Services Desktop Programming Attributes

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

**FastEthernet0**

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0001.C9B0.C27C

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 172.16.4.6

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::201:C9FF:FE80:C27C

## 2. Настроить безопасный доступ к коммутаторам и маршрутизатору.

Router

Physical **Config** CLI Attributes

**GLOBAL**

- Settings
- Algorithm Settings

**ROUTING**

- Static
- RIP

**SWITCHING**

- VLAN Database

**INTERFACE**

- GigabitEthernet0/0**
- GigabitEthernet0/1
- GigabitEthernet0/2

**GigabitEthernet0/0**

Port Status ☒ On

Bandwidth ☒ 1000 Mbps ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☒ Half Duplex ☐ Full Duplex ☒ Auto

MAC Address 000C.CF82.0301

IP Configuration

IPv4 Address 10.1.4.254

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up
ip address 10.1.4.254 255.255.255.0
Router(config-if)#
```

Physical Config CLI Attributes

<b>GLOBAL</b>	<b>GigabitEthernet0/1</b>	
Settings		
Algorithm Settings		
<b>ROUTING</b>		
Static		
RIP		
<b>SWITCHING</b>		
VLAN Database		
<b>INTERFACE</b>		
GigabitEthernet0/0		
<b>GigabitEthernet0/1</b>		
GigabitEthernet0/2		

Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 1000 Mbps <input type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	000C.CF82.0302
<b>IP Configuration</b>	
IPv4 Address	192.168.4.254
Subnet Mask	255.255.255.0
Tx Ring Limit	10

## Equivalent IOS Commands

```
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ip address 192.168.4.254 255.255.255.0
Router(config-if)#
```

Router

Physical Config CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**SWITCHING**

VLAN Database

**INTERFACE**

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/2

**GigabitEthernet0/2**

Port Status ☒ On

Bandwidth ☒ 1000 Mbps ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☒ Half Duplex ☐ Full Duplex ☒ Auto

MAC Address 000C.CF82.0303

IP Configuration

IPv4 Address 172.16.4.254

Subnet Mask 255.255.0.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/2
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to up
```

☐ Top

3. Указать адреса портов маршрутизатора как адрес шлюза по умолчанию для конечных узлов.

PC0

Physical

Config

Desktop

Programming

Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Bluetooth

Global Settings

Display NamePC0

InterfacesFastEthernet0

Gateway/DNS IPv4

DHCP

Static

Default Gateway10.1.4.254

DNS Server192.168.4.4

Gateway/DNS IPv6

Automatic

Static

Default Gateway

DNS Server

PC1

Physical

Config

Desktop

Programming

Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Bluetooth

Global Settings

Display NamePC1

InterfacesFastEthernet0

Gateway/DNS IPv4

DHCP

Static

Default Gateway10.1.4.254

DNS Server192.168.4.4

Gateway/DNS IPv6

Automatic

Static

Default Gateway

DNS Server



Physical **Config** Desktop Programming Attributes**GLOBAL**  
Settings  
Algorithm Settings  
**INTERFACE**  
FastEthernet0  
Bluetooth

## Global Settings

Display Name PC2

Interfaces FastEthernet0

## Gateway/DNS IPv4

☐ DHCP☒ Static

Default Gateway 10.1.4.254

DNS Server 192.168.4.4

## Gateway/DNS IPv6

☐ Automatic☒ Static

Default Gateway

DNS Server

Physical **Config** Services Desktop Programming Attributes**GLOBAL**  
Settings  
Algorithm Settings  
**INTERFACE**  
FastEthernet0

## Global Settings

Display Name DNS server

## Gateway/DNS IPv4

☐ DHCP☒ Static

Default Gateway 192.168.4.254

DNS Server 192.168.4.4

## Gateway/DNS IPv6

☐ Automatic☒ Static

Default Gateway

DNS Server

Physical **Config** Services Desktop Programming Attributes

**GLOBAL** ^

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

Global Settings

Display Name HTTP Server

Gateway/DNS IPv4

☐ DHCP

☒ Static

Default Gateway 172.16.4.254

DNS Server 192.168.4.4

Gateway/DNS IPv6

☐ Automatic

☒ Static

Default Gateway

DNS Server

Physical **Config** Services Desktop Programming Attributes

**GLOBAL** ^

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

Global Settings

Display Name Email Server

Gateway/DNS IPv4

☐ DHCP

☒ Static

Default Gateway 172.16.4.254

DNS Server 192.168.4.4

Gateway/DNS IPv6

☐ Automatic

☒ Static

Default Gateway

DNS Server

#### 4. Настроить DNS сервер.

The screenshot shows the 'DNS server' configuration window. The 'Services' tab is active, and 'DNS' is selected in the left-hand 'SERVICES' list. On the right, the 'DNS Service' is set to 'On'. Under 'Resource Records', there is a 'Name' field, a 'Type' dropdown menu set to 'A Record', and an 'Address' field. Below these fields are 'Add', 'Save', and 'Remove' buttons. At the bottom, there is a table with columns: No., Name, Type, and Detail.

No.	Name	Type	Detail
-----	------	------	--------

#### 5. Указать адрес DNS сервера для конечных узлов.

Адрес DNS сервера указан для конечных узлов, как можно увидеть из скриншотов выше.

#### 6. Настроить почтовый сервер SMTP и POP3.

The screenshot shows the 'Email Server' configuration window. The 'Services' tab is active, and 'EMAIL' is selected in the left-hand 'SERVICES' list. On the right, under 'EMAIL', both 'SMTP Service' and 'POP3 Service' are set to 'ON'. Below these, the 'Domain Name' is set to 'mail.ishkovazapolskaia.ru'. The 'User Setup' section has 'User' and 'Password' fields. A list of users (pc0, pc1, pc2) is shown in a text area. To the right of this list are buttons for '+', '-', 'Change', and 'Password'.

## 7. Добавить почтовые записи на DNS – сервер.

DNS server

Physical Config **Services** Desktop Programming Attributes

**SERVICES**

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS**
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

DNS

DNS Service ☒ On ☐ Off

Resource Records

Name  Type **A Record** ▼

Address

**Add** **Save** **Remove**

No.	Name	Type	Detail
0	mail.ishkovazapolskaia.ru	A Record	172.16.4.6

## 8. Настроить почтовый клиент на всех ПК.

PC0

Physical Config **Desktop** Programming Attributes

**Configure Mail** X

User Information

Your Name:

Email Address:

Server Information

Incoming Mail Server:

Outgoing Mail Server:

Logon Information

User Name:

Password:

**Save** **Clear** **Reset**

PC1

Physical Config **Desktop** Programming Attributes

**Configure Mail** X

User Information

Your Name: pc1

Email Address: pc1@mail.ishkovazapolskaia.ru

Server Information

Incoming Mail Server: mail.ishkovazapolskaia.ru

Outgoing Mail Server: mail.ishkovazapolskaia.ru

Logon Information

User Name: pc1

Password: ...

Save Clear Reset

PC2

Physical Config **Desktop** Programming Attributes

**Configure Mail** X

User Information

Your Name: pc2

Email Address: pc2@mail.ishkovazapolskaia.ru

Server Information

Incoming Mail Server: mail.ishkovazapolskaia.ru

Outgoing Mail Server: mail.ishkovazapolskaia.ru

Logon Information

User Name: pc2

Password: ...

Save Clear Reset

**9. Настроить HTTP сервер, разместить там тестовую страницу с номером варианта, фамилией, номером группы, датой выполнения работы.**

Physical Config **Services** Desktop Programming Attributes**SERVICES**

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

Radius EAP

## HTTP

HTTP



On



Off

HTTPS



On



Off

## File Manager

	File Name	Edit	Delete
1	copyrights.html	(edit)	(delete)
2	cscoptlogo177x111.jpg		(delete)
3	helloworld.html	(edit)	(delete)
4	image.html	(edit)	(delete)
5	index.html	(edit)	(delete)

New File

Import

☐ TopPhysical Config **Services** Desktop Programming Attributes**SERVICES**

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

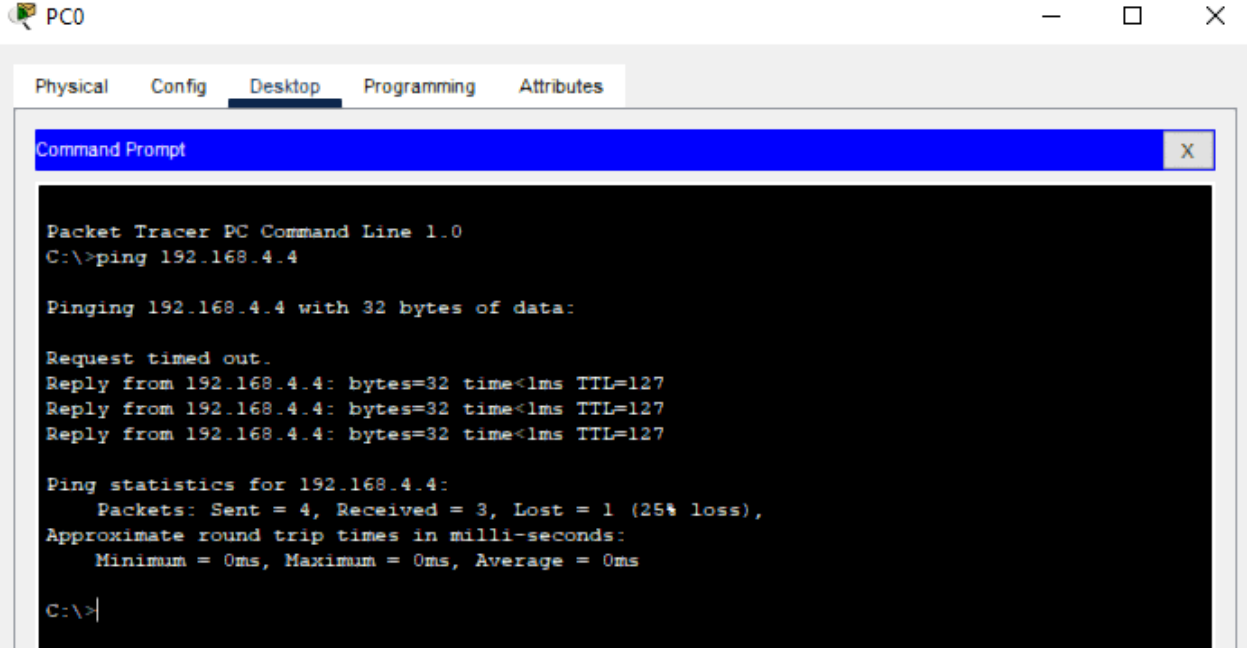
Radius EAP

File Name: index.html

```
<html>
<center><font size='+2' color='blue'>Olesia Ishkova-Zapolskaia IU7-63BV</font></center>
<hr>Lab variant IV. Today 11.04.2022
<p>Quick Links:
<br><a href='helloworld.html'>A small page</a>
<br><a href='copyrights.html'>Copyrights</a>
<br><a href='image.html'>Image page</a>
<br><a href='cscoptlogo177x111.jpg'>Image</a>
</html>
```

**10. Проверить корректное прохождение сигнала между всеми узлами сети, доступность настроенных сервисов со стороны клиентов на ПК.**

PC0 и DNS сервер:



```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.4.4

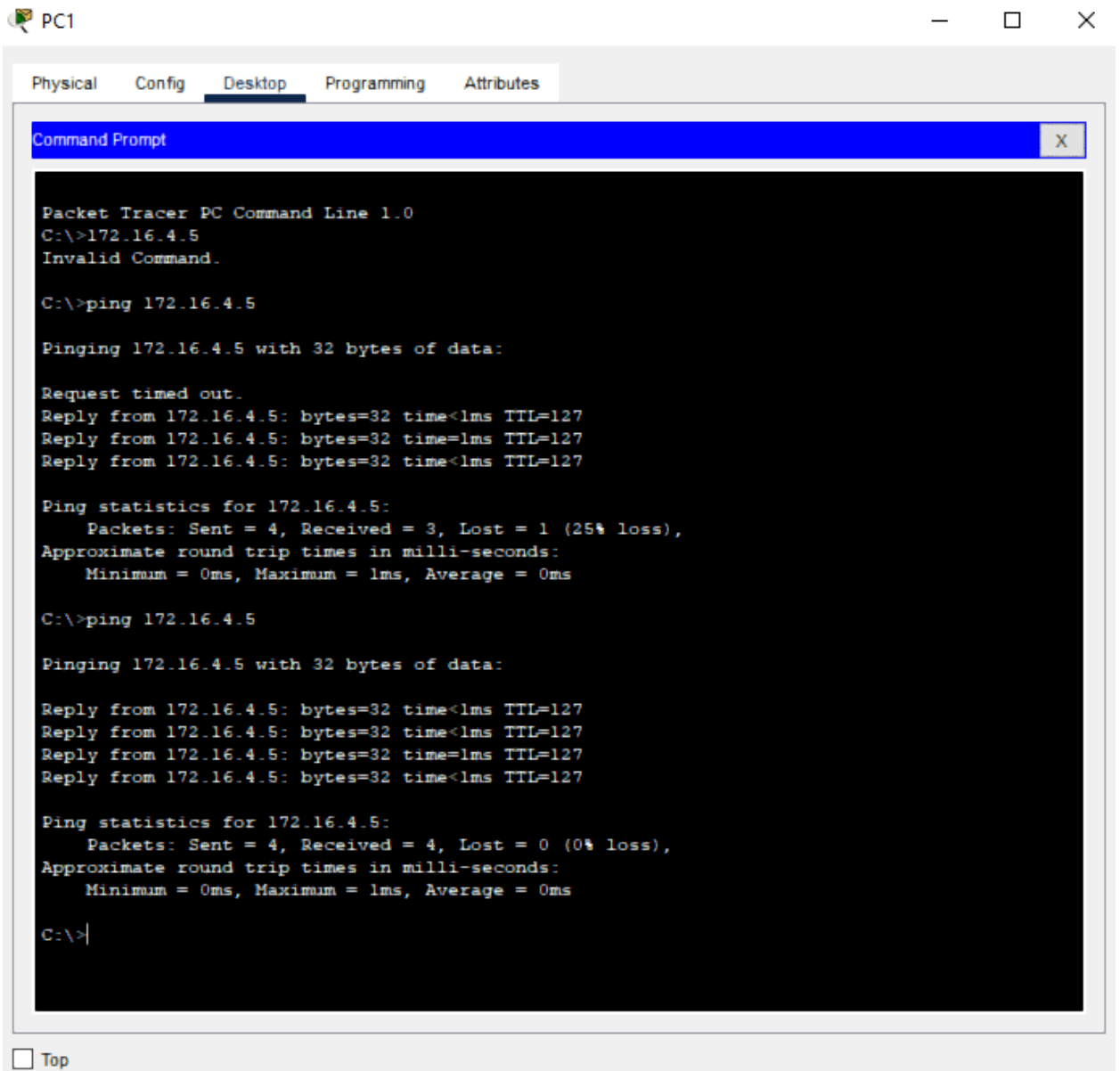
Pinging 192.168.4.4 with 32 bytes of data:

Request timed out.
Reply from 192.168.4.4: bytes=32 time<1ms TTL=127
Reply from 192.168.4.4: bytes=32 time<1ms TTL=127
Reply from 192.168.4.4: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.4.4:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

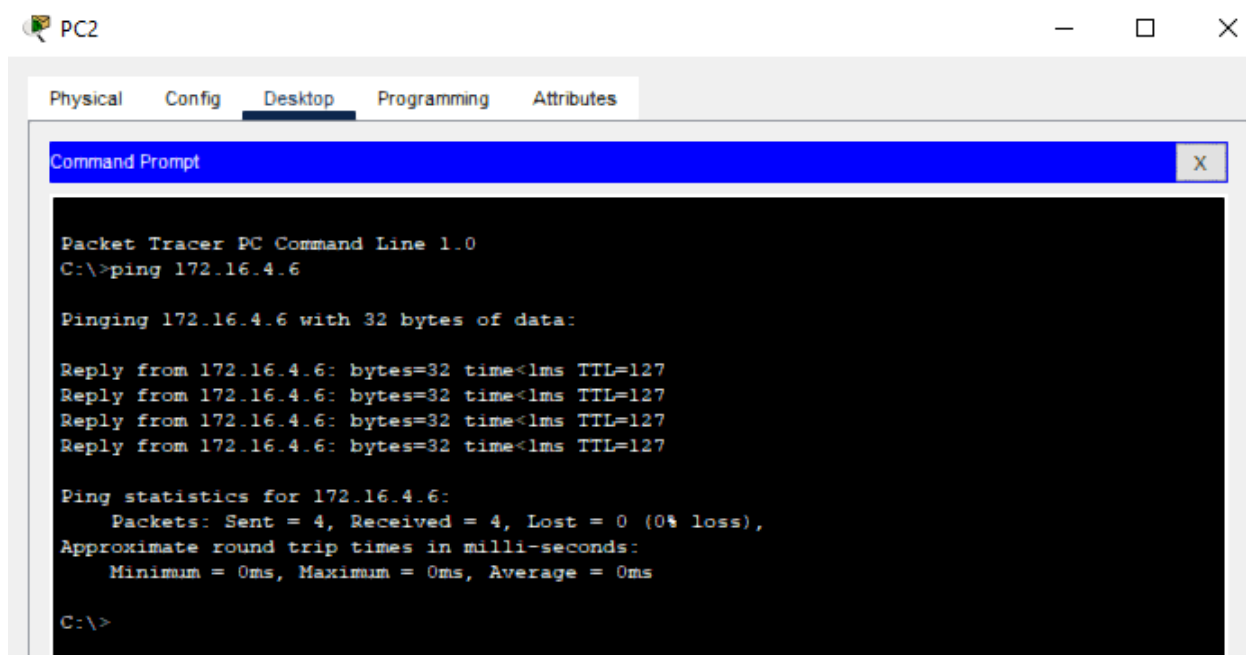
C:\>|
```

PC1 и HTTP сервер:

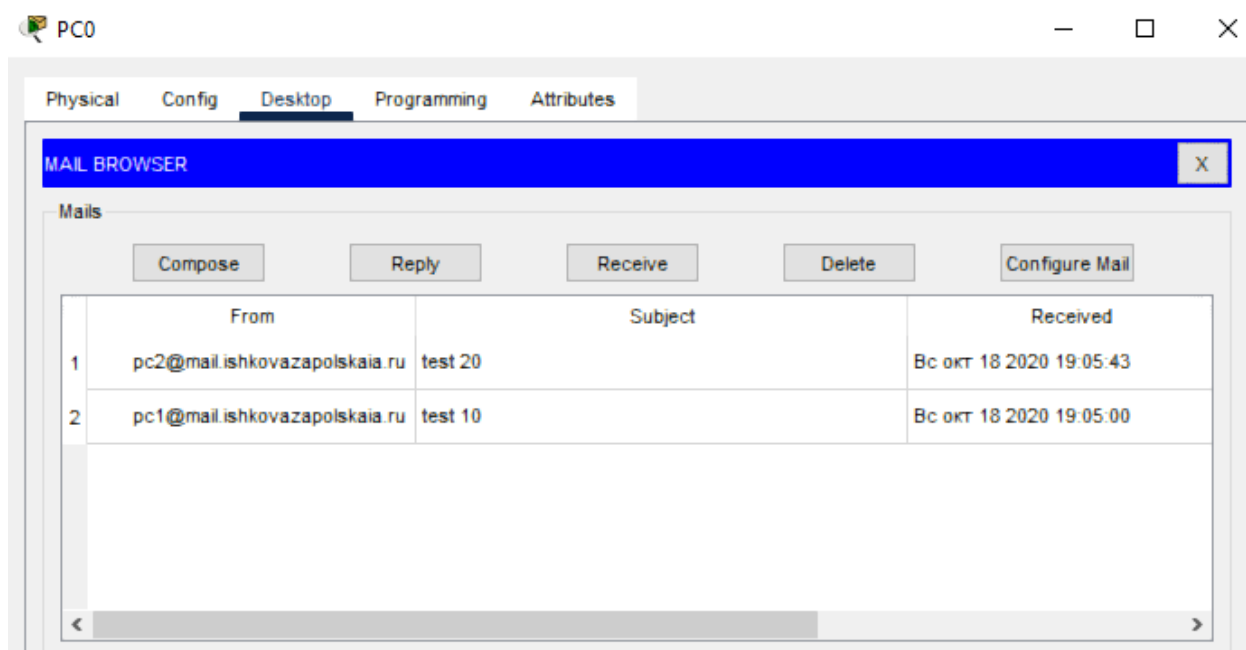


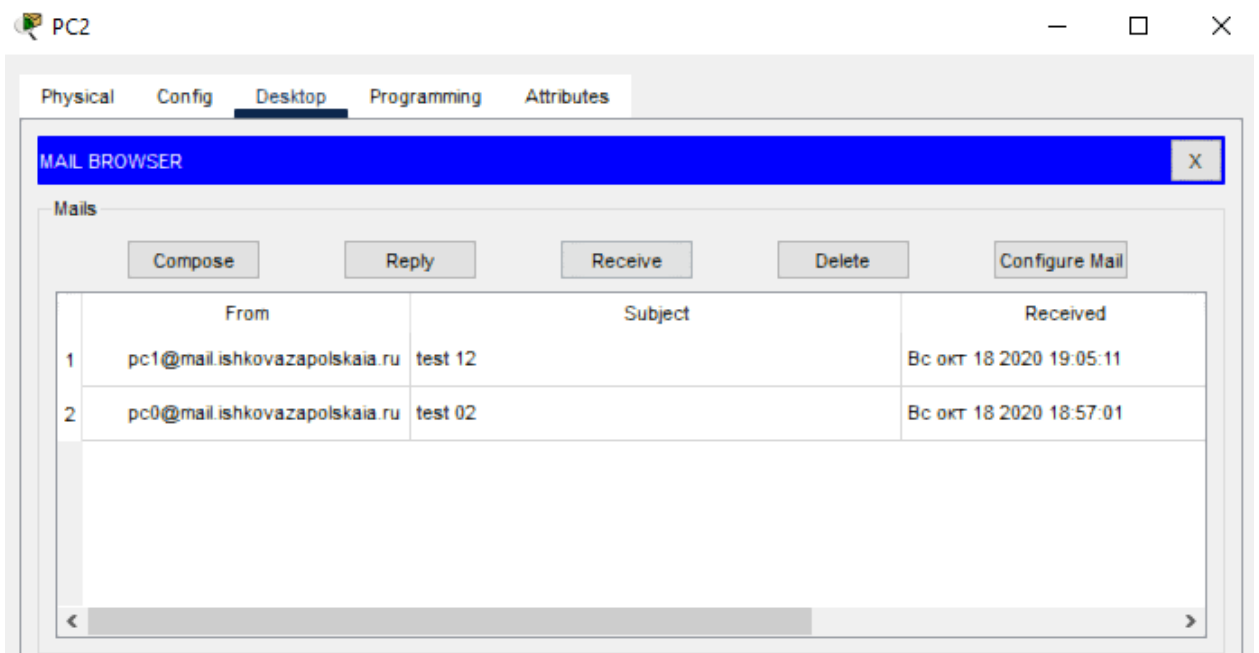
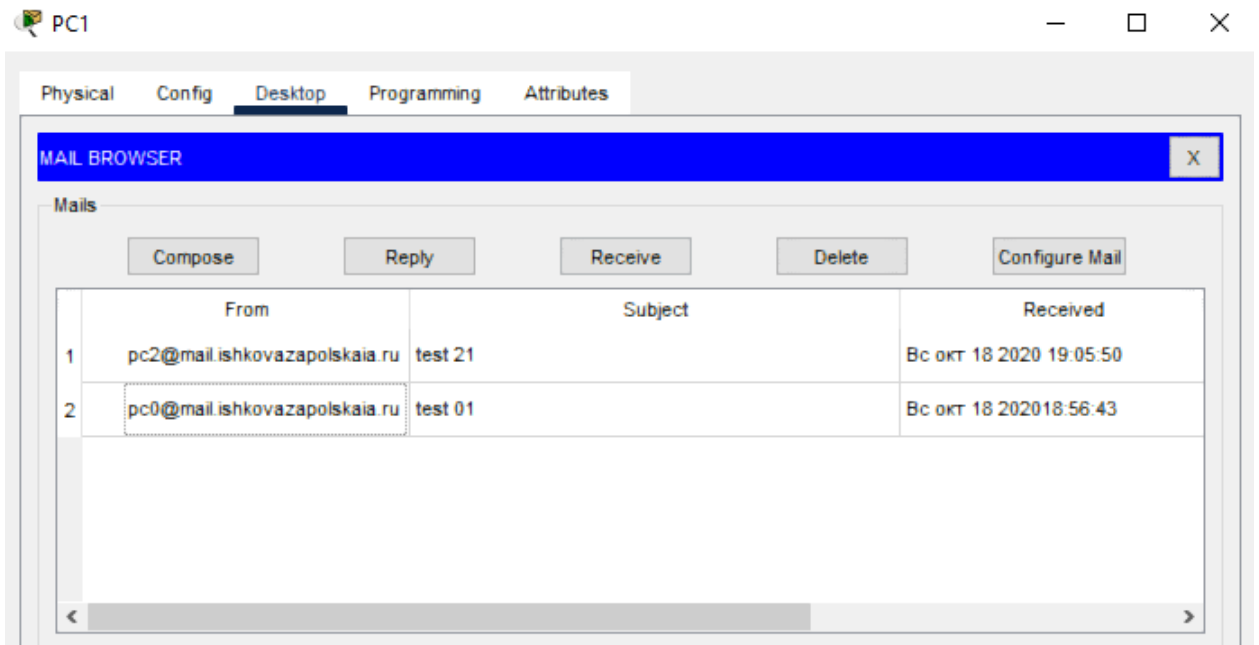


PC2 и Email сервер:



Проверка получения email-отправлений:





**11. Отметить широковежательные домены и домены коллизий на схеме.**

Адрес ПК (сеть 1): 10.1.x.y 255.255.255.0  
Адрес DNS сервера (сеть 2): 192.168.x.y 255.255.255.0  
Адрес HTTP и SMTP серверов (сеть 3): 172.16.x.y 255.255.255.0

Адрес DNS сервера (сеть 2): 192.168.x.y 255.255.255.0

Адрес HTTP и SMTP серверов (сеть 3): 172.16.x.y 255.255.255.0

Адрес DNS сервера (сеть 2): 192.168.x.y 255.255.255.0  
 Адрес HTTP и SMTP серверов (сеть 3): 172.16.x.y 255.255.255.0

x - Ваш номер по списку в Электронном Учёбе