Отчёт по практической работе 25
Землянский В. ИС223

Цель работы:

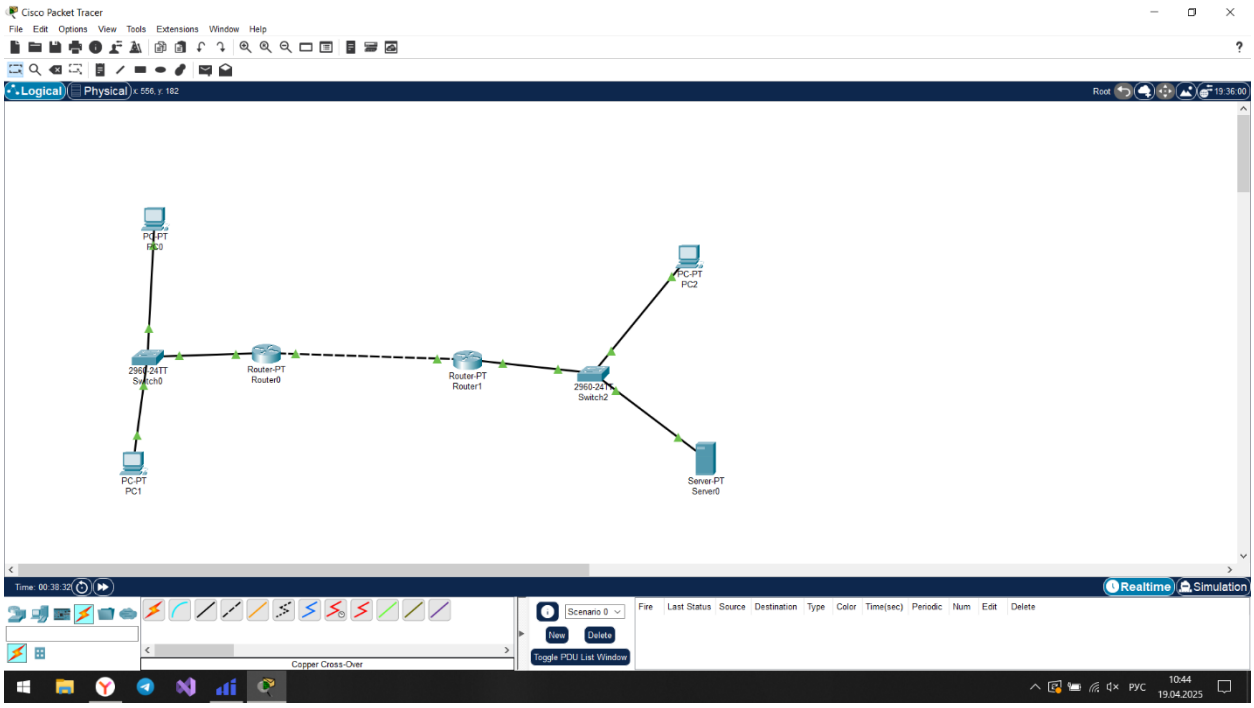
Настроить сеть с использованием dhcp, dns и rip для автоматической настройки ip адресов и обеспечения маршрутизации между различными сегментами сети.

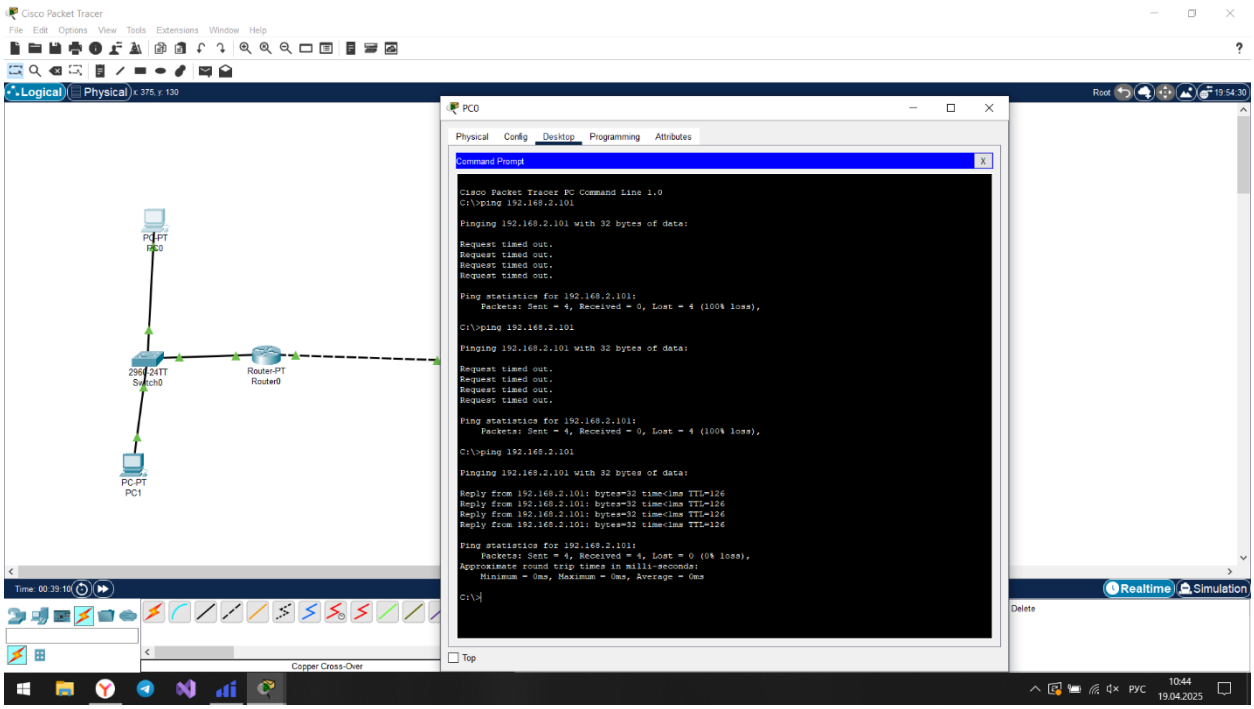
Ход выполнения работы:

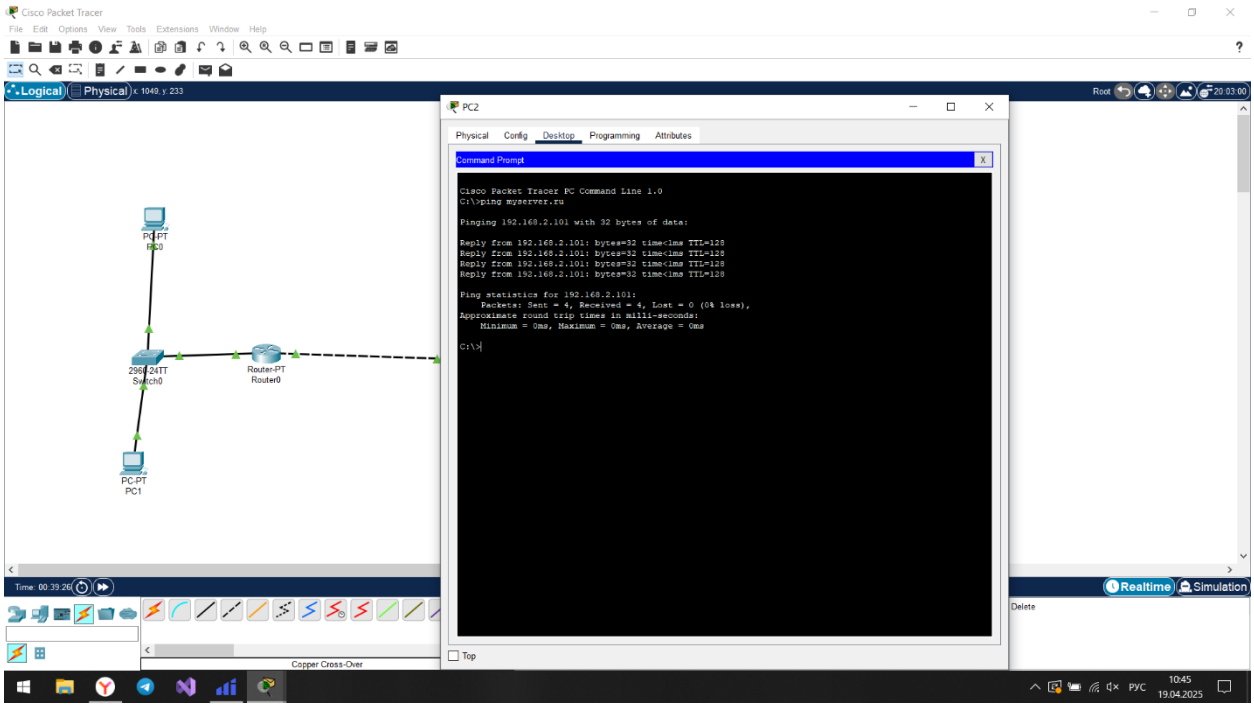
1. Создание сети:
    - Построил сеть с использованием двух маршрутизаторов (router0 и router1), двух коммутаторов и четырех пк.
    - Соединил маршрутизаторы между собой, используя кроссоверы. Подключил пк к соответствующим интерфейсам маршрутизаторов.
2. Настройка ip адресов:
    - Настроил ip адреса на маршрутизаторах в соответствующих подсетях:
        - router0: Интерфейс fa0/0 настроен с IP-адресом 192.168.1.1.
        - router1: Интерфейс fa0/0 настроен с IP-адресом 192.168.2.1.
3. Настройка dhcp:
    - На router0 настроил пул dhcp для выдачи ip адресов в сети 192.168.1.0. Указал шлюз по умолчанию 192.168.1.100 и dns сервер 192.168.2.101.
    - Настроил исключение диапазона ip адресов от 192.168.1.1 до 192.168.1.100, чтобы эти адреса не использовались dhcp.
    - Включил маршрутизацию RIP на router0 для сети 192.168.1.0 и 192.168.3.0.
4. Настройка dns сервера:
    - На router1 настроил dns сервер с ip адресом 192.168.2.101, который будет использоваться для разрешения доменных имен в сети.
    - Проверил работоспособность dns, запустив команду ping на домен с pc1.
5. Настройка маршрутизации RIP:
    - Включил маршрутизацию RIP на router1 и подключил его к сети 192.168.2.0.
    - Проверил, что маршруты правильно распространяются между маршрутизаторами и что RIP работает.
6. Проверка работоспособности:

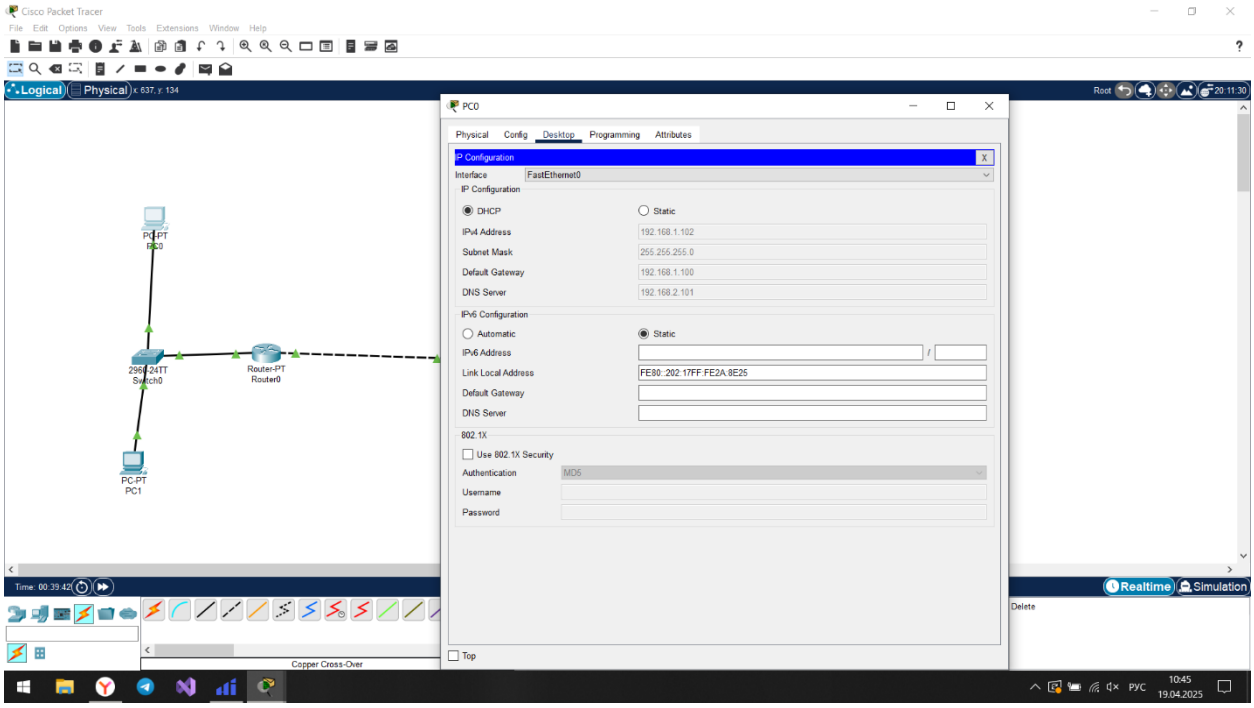
- Подключил pc к router0 и проверил что они получают адреса от dhcp сервера.
- Проверил пинг с pc0 к pc2

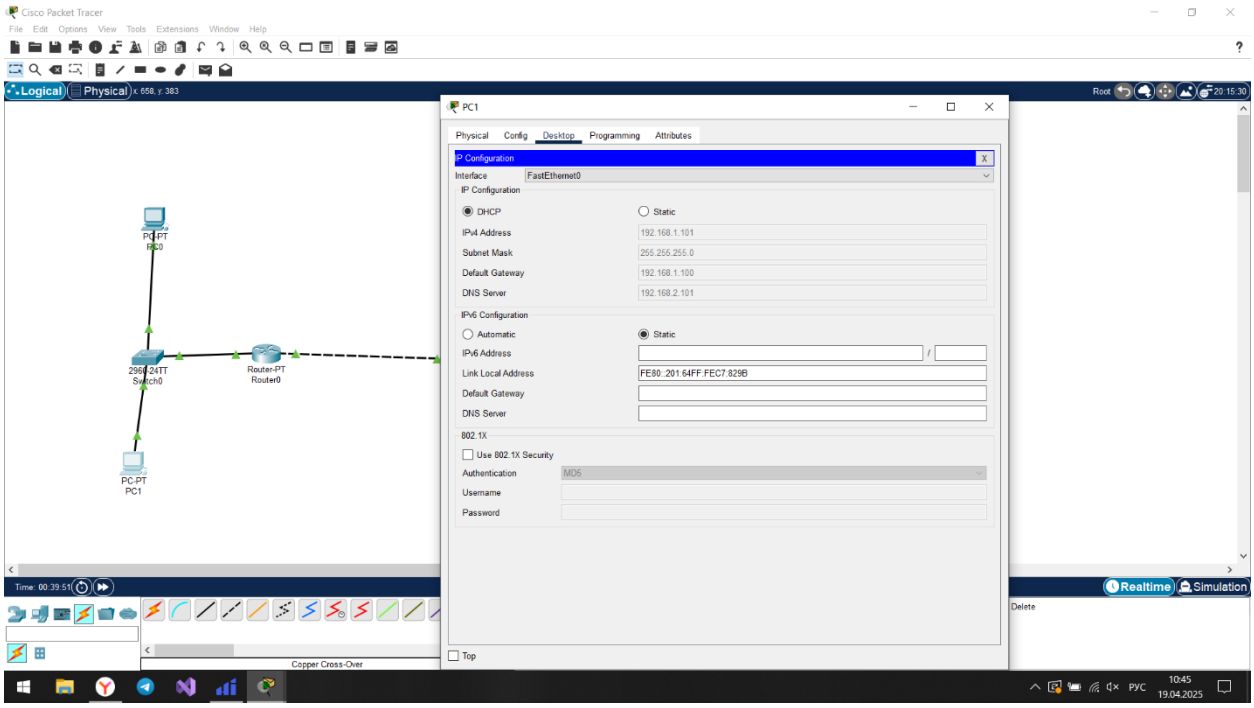
Скрины:

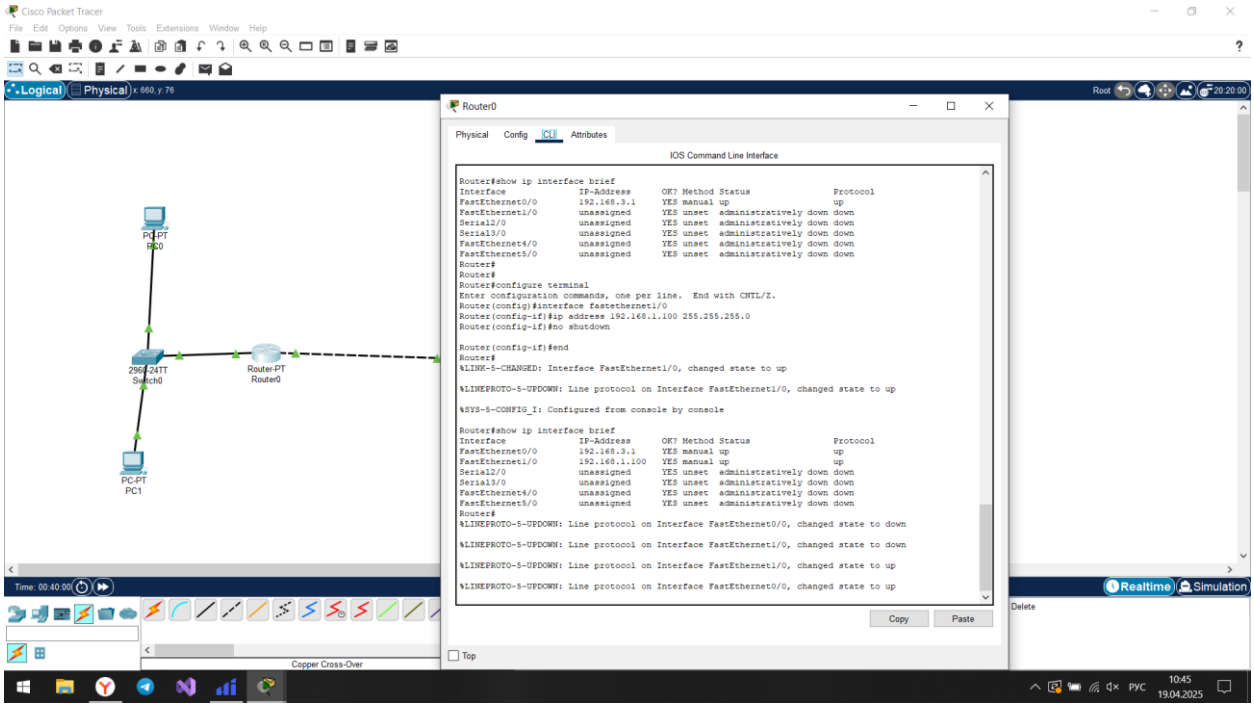


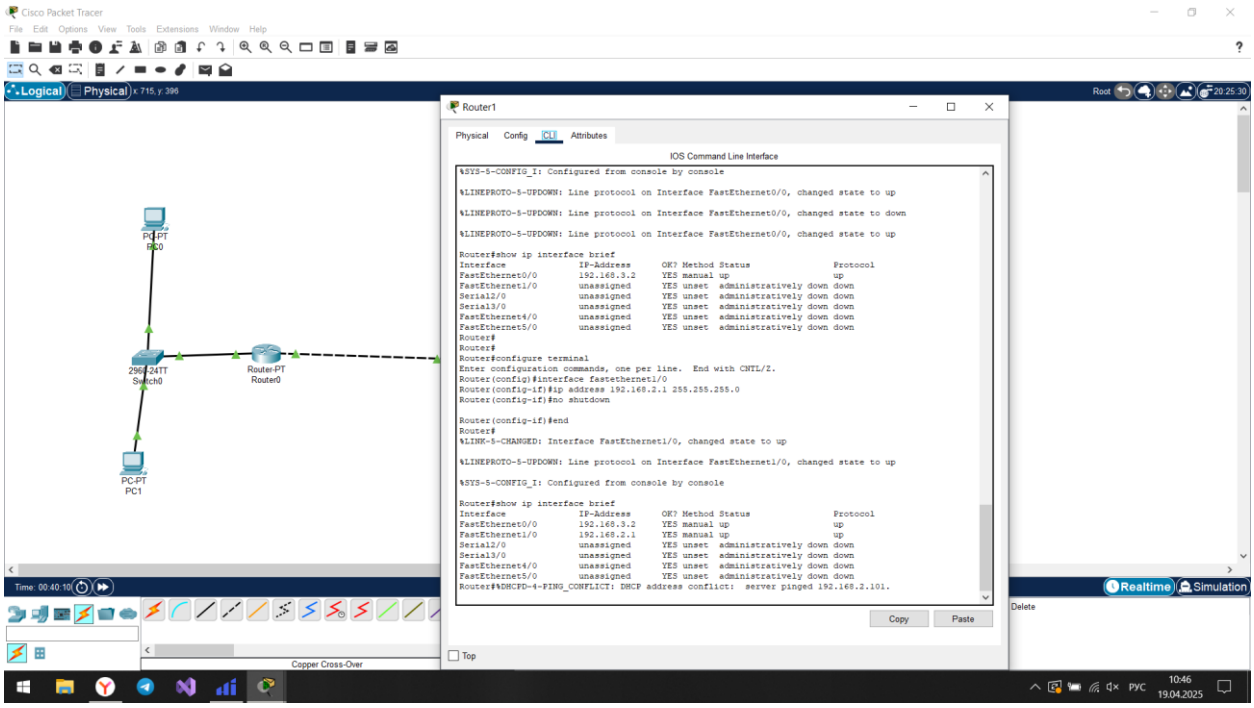


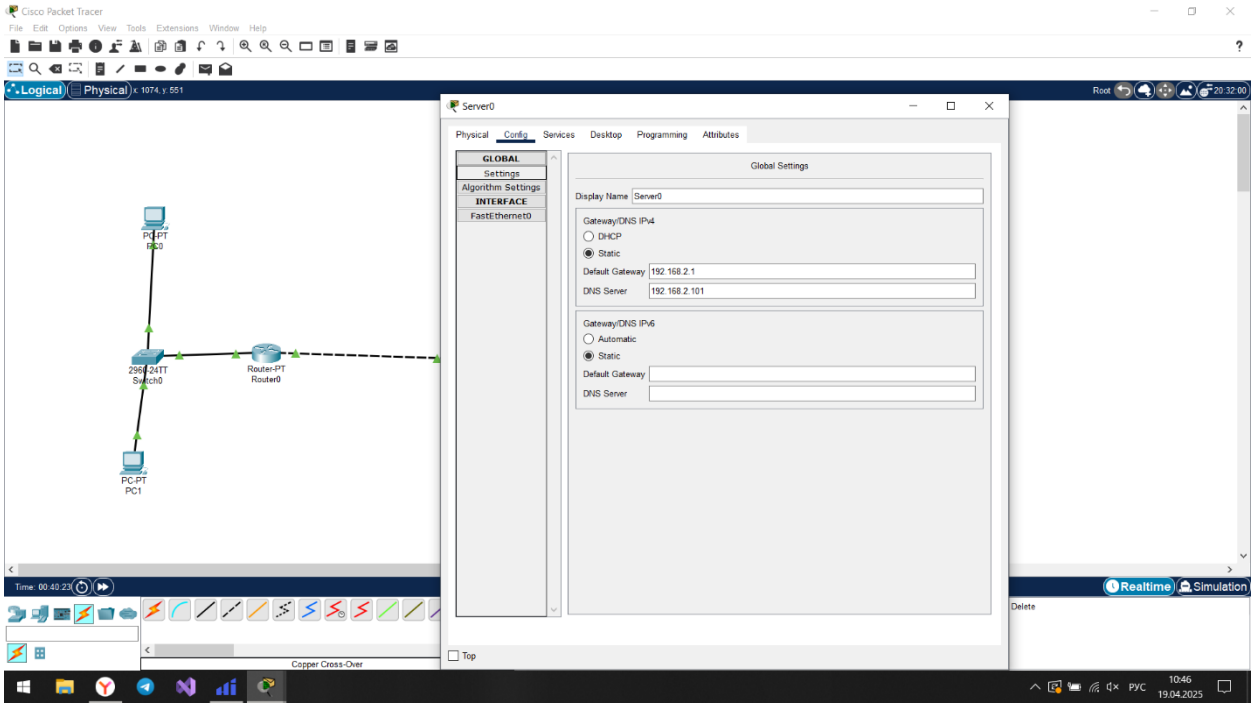

Cisco Packet Tracer
PC2
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping myserver.ru
Pinging 192.168.2.101 with 32 bytes of data:
Reply from 192.168.2.101: bytes=32 time<1ms TTL=128
Reply from 192.168.2.101: bytes=32 time<1ms TTL=128
Reply from 192.168.2.101: bytes=32 time<1ms TTL=128
Reply from 192.168.2.101: bytes=32 time<1ms TTL=128
Ping statistics for 192.168.2.101:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>
PC-PT PC0
2960-24TT Switch0
Router-PT Router0
PC-PT PC1
Logical
Physical
Realtime
Simulation
Copper Cross-Over
Top

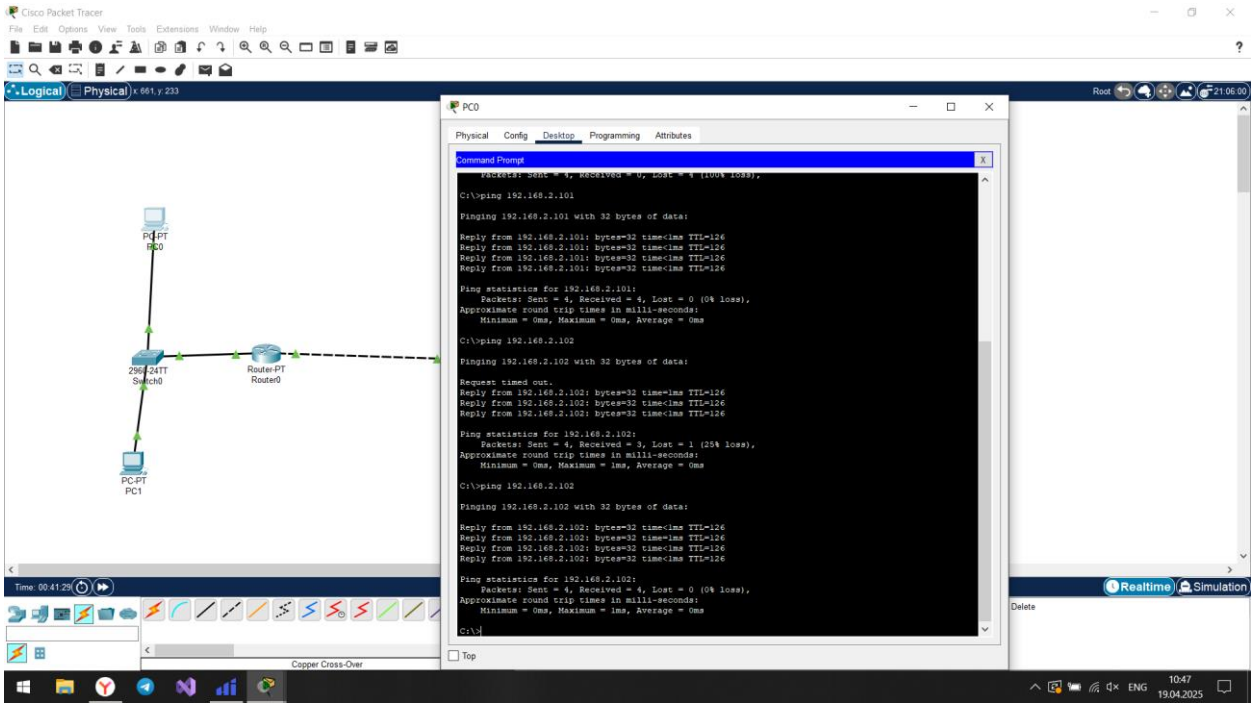

Cisco Packet Tracer
PC0
Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
DHCP
Static
IPv4 Address
192.168.1.102
Subnet Mask
255.255.255.0
Default Gateway
192.168.1.100
DNS Server
192.168.2.101
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::202:17FF:FE2A:8E25
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
PC-PT PC0
2960-24TT Switch0
Router-PT Router0
PC-PT PC1
Logical
Physical
Realtime
Simulation
Copper Cross-Over
Top


Cisco Packet Tracer
File Edit Options View Tools Extensions Window Help
Logical Physical x: 658, y: 383
Root 20:15:30
PC1
Physical Config Desktop Programming Attributes
IP Configuration
Interface FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address 192.168.1.101
Subnet Mask 255.255.255.0
Default Gateway 192.168.1.100
DNS Server 192.168.2.101
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address FE80::201:64FF:FEC7:829B
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication MD5
Username
Password
Top
PC-PT PC0
2960-24TT Switch0
Router-PT Router0
PC-PT PC1
Time: 00:39:51
Realtime Simulation
Delete
Copper Cross-Over
РУС 10:45 19.04.2025


Cisco Packet Tracer
File Edit Options View Tools Extensions Window Help
Logical Physical x: 660, y: 76
Root 20:20:00
Router0
Physical Config CLI Attributes
IOS Command Line Interface
Router#show ip interface brief
Interface IP-Address OK? Method Status Protocol
FastEthernet0/0 192.168.3.1 YES manual up up
FastEthernet1/0 unassigned YES unset administratively down down
Serial2/0 unassigned YES unset administratively down down
Serial3/0 unassigned YES unset administratively down down
FastEthernet4/0 unassigned YES unset administratively down down
FastEthernet5/0 unassigned YES unset administratively down down
Router#
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet1/0
Router(config-if)#ip address 192.168.1.100 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#end
Router#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
%SYS-5-CONFIG_I: Configured from console by console
Router#show ip interface brief
Interface IP-Address OK? Method Status Protocol
FastEthernet0/0 192.168.3.1 YES manual up up
FastEthernet1/0 192.168.1.100 YES manual up up
Serial2/0 unassigned YES unset administratively down down
Serial3/0 unassigned YES unset administratively down down
FastEthernet4/0 unassigned YES unset administratively down down
FastEthernet5/0 unassigned YES unset administratively down down
Router#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Copy
Paste
Top
PC-PT PC0
2960-24TT Switch0
Router-PT Router0
PC-PT PC1
Time: 00:40:00
Realtime Simulation
Delete
Copper Cross-Over
РУС 10:45 19.04.2025


Cisco Packet Tracer
Router1
Physical
Config
CLI
Attributes
IOS Command Line Interface
%SYS-5-CONFIG_I: Configured from console by console
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Router#show ip interface brief
Interface IP-Address OK? Method Status Protocol
FastEthernet0/0 192.168.3.2 YES manual up up
FastEthernet1/0 unassigned YES unset administratively down down
Serial2/0 unassigned YES unset administratively down down
Serial3/0 unassigned YES unset administratively down down
FastEthernet4/0 unassigned YES unset administratively down down
FastEthernet5/0 unassigned YES unset administratively down down
Router#
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet1/0
Router(config-if)#ip address 192.168.2.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#end
Router#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
%SYS-5-CONFIG_I: Configured from console by console
Router#show ip interface brief
Interface IP-Address OK? Method Status Protocol
FastEthernet0/0 192.168.3.2 YES manual up up
FastEthernet1/0 192.168.2.1 YES manual up up
Serial2/0 unassigned YES unset administratively down down
Serial3/0 unassigned YES unset administratively down down
FastEthernet4/0 unassigned YES unset administratively down down
FastEthernet5/0 unassigned YES unset administratively down down
Router#%DHCPD-4-PING_CONFLICT: DHCP address conflict: server pinged 192.168.2.101.
Copy
Paste
Top
PC-PT PC0
2960-24TT Switch0
Router-PT Router0
PC-PT PC1
Realtime
Simulation
Delete
Copper Cross-Over


Cisco Packet Tracer
Server0
Physical
Config
Services
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Global Settings
Display Name Server0
Gateway/DNS IPv4
DHCP
Static
Default Gateway 192.168.2.1
DNS Server 192.168.2.101
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server
Top
PC-PT PC0
2960-24TT Switch0
Router-PT Router0
PC-PT PC1
Realtime
Simulation
Delete
Copper Cross-Over


Cisco Packet Tracer
File Edit Options View Tools Extensions Window Help
Logical Physical x 661, y 233
Root 21:06:00
PC0
Physical Config Desktop Programming Attributes
Command Prompt
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>ping 192.168.2.101
Pinging 192.168.2.101 with 32 bytes of data:
Reply from 192.168.2.101: bytes=32 time<1ms TTL=126
Reply from 192.168.2.101: bytes=32 time<1ms TTL=126
Reply from 192.168.2.101: bytes=32 time<1ms TTL=126
Reply from 192.168.2.101: bytes=32 time<1ms TTL=126
Ping statistics for 192.168.2.101:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 192.168.2.102
Pinging 192.168.2.102 with 32 bytes of data:
Request timed out.
Reply from 192.168.2.102: bytes=32 time=1ms TTL=126
Reply from 192.168.2.102: bytes=32 time<1ms TTL=126
Reply from 192.168.2.102: bytes=32 time<1ms TTL=126
Ping statistics for 192.168.2.102:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>ping 192.168.2.102
Pinging 192.168.2.102 with 32 bytes of data:
Reply from 192.168.2.102: bytes=32 time<1ms TTL=126
Reply from 192.168.2.102: bytes=32 time<1ms TTL=126
Reply from 192.168.2.102: bytes=32 time<1ms TTL=126
Reply from 192.168.2.102: bytes=32 time<1ms TTL=126
Ping statistics for 192.168.2.102:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>
Top
PC-PT PC0
2960-24TT Switch0
Router-PT Router0
PC-PT PC1
Time: 00:41:29
Realtime Simulation
Delete
Copper Cross-Over
ENG 10:47 19.04.2025