

Защита лабораторной работы №8

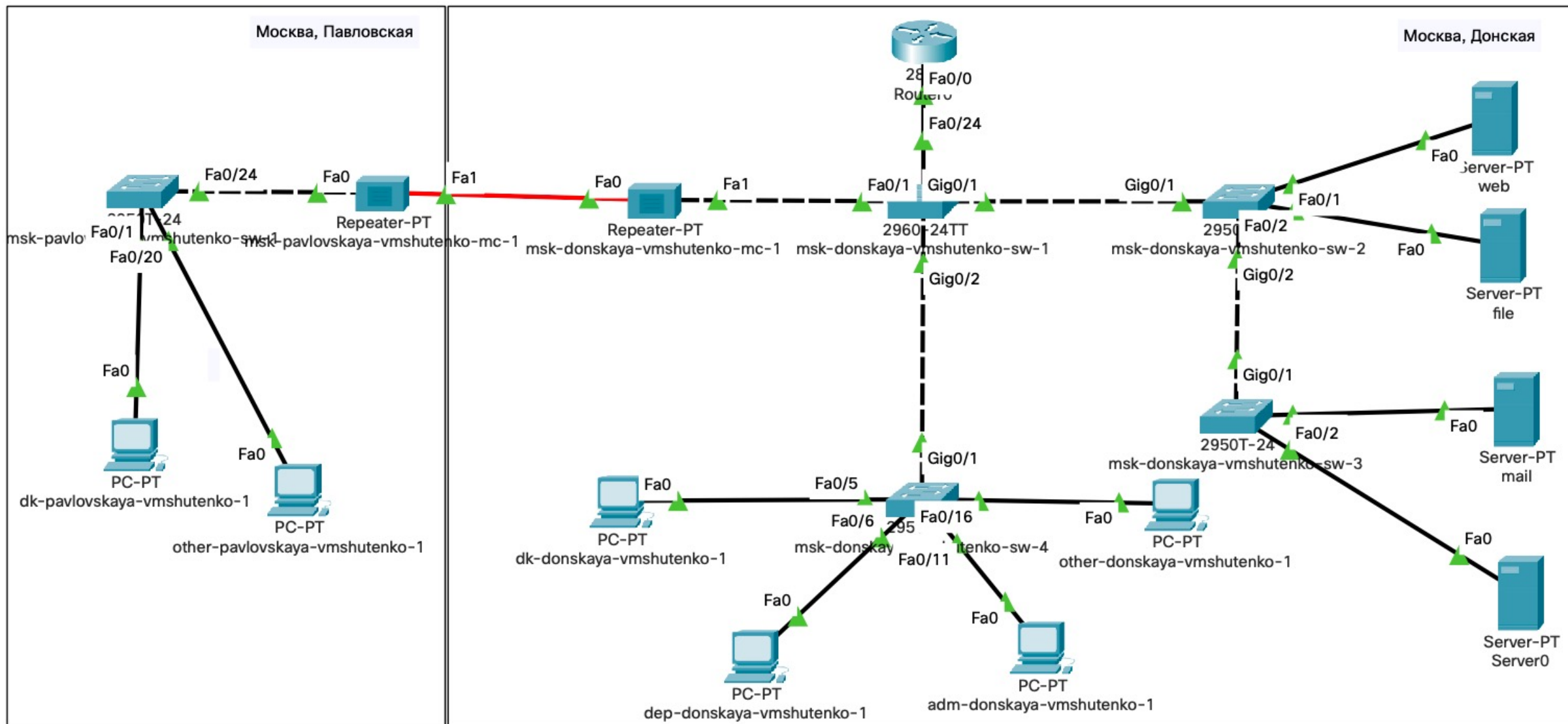
Цель лабораторной работы

- Приобретение практических навыков по настройке динамического распределения IP-адресов посредством протокола DHCP (Dynamic Host Configuration Protocol) в локальной сети.

Задание лабораторной работы

1. Добавить DNS-записи для домена `donskaya.rudn.ru` на сервер `dns`.
2. Настроить DHCP-сервис на маршрутизаторе.
3. Заменить в конфигурации оконечных устройствах статическое распределение адресов на динамическое.
4. При выполнении работы необходимо учитывать соглашение об именовании (см. раздел 2.5).

Схема сети



Поднятие порта f0/2. Задание шлюза и адреса с маской

The image displays three overlapping screenshots from a network management interface, illustrating the configuration of a switch port f0/2.

Leftmost Screenshot (CLI Interface): Shows the command-line interface for the switch `msk-donskaya-vmshutenko-sw-3`. The CLI shows the process of entering configuration mode and setting the port f0/2 to access mode and assigning it to VLAN 3. The output indicates that the configuration was successfully applied.

```
msk-donskaya-vmshutenko-sw-3>
msk-donskaya-vmshutenko-sw-3>en
Password:
msk-donskaya-vmshutenko-sw-3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-vmshutenko-sw-3(config)#interface f0/2
msk-donskaya-vmshutenko-sw-3(config-if)#switchport mode access
msk-donskaya-vmshutenko-sw-3(config-if)#switchport access vlan3
^
% Invalid input detected at '^' marker.

msk-donskaya-vmshutenko-sw-3(config-if)#switchport access vlan 3
msk-donskaya-vmshutenko-sw-3(config-if)#exit
msk-donskaya-vmshutenko-sw-3(config)#exit
msk-donskaya-vmshutenko-sw-3#
%SYS-5-CONFIG_I: Configured from console by console
wr mem
Building configuration...
[OK]
msk-donskaya-vmshutenko-sw-3#
```

Middle Screenshot (Config Tab): Shows the configuration page for the `dns` interface. The `Display Name` is set to `dns`. The `Gateway/DNS IPv4` section is configured with `Static` mode, a `Default Gateway` of `10.128.0.1`, and a `DNS Server` field.

Rightmost Screenshot (Config Tab): Shows the configuration page for the `FastEthernet0` interface. The `Port Status` is set to `On`. The `Bandwidth` is set to `100 Mbps` and `Auto`. The `Duplex` is set to `Full Duplex` and `Auto`. The `MAC Address` is `00D0.5866.9569`. The `IP Configuration` section is configured with `Static` mode, an `IPv4 Address` of `10.128.0.5`, and a `Subnet Mask` of `255.255.255.0`. The `IPv6 Configuration` section is also configured with `Static` mode, an `IPv6 Address` field, and a `Link Local Address` of `FE80::2D0:58FF:FE66:9569`.

Настройка сервиса DNS

PhysicalConfigServicesDesktopProgrammingAttributes

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

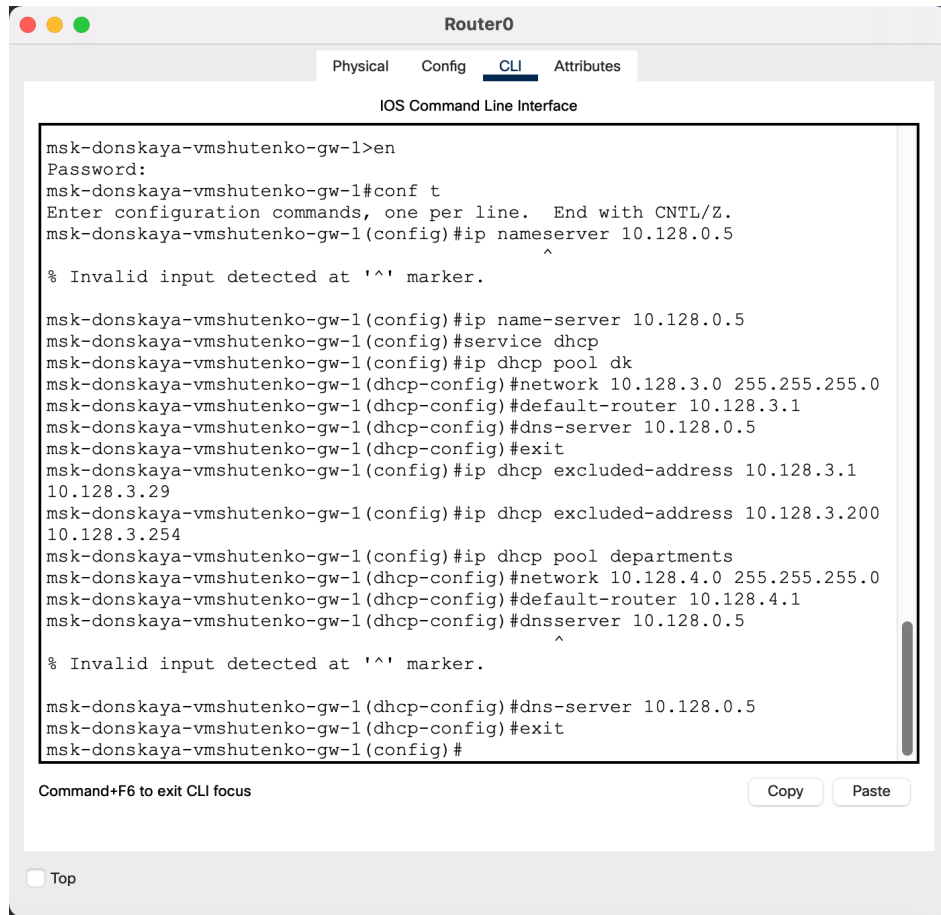
Remove

No.	Name	Type	Detail
0	dns.donskaya.rudn.ru	A Record	10.128.0.5
1	file.donskaya.rudn.ru	A Record	10.128.0.3
2	mail.donskaya.rudn.ru	A Record	10.128.0.4
3	www.donskaya.rudn.ru	A Record	10.128.0.2

DNS Cache

Top

Настройка DHCP



Router0

Physical Config **CLI** Attributes

IOS Command Line Interface

```
mks-donskaya-vmshutenko-gw-1>en
Password:
mks-donskaya-vmshutenko-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
mks-donskaya-vmshutenko-gw-1(config)#ip nameserver 10.128.0.5
^
% Invalid input detected at '^' marker.

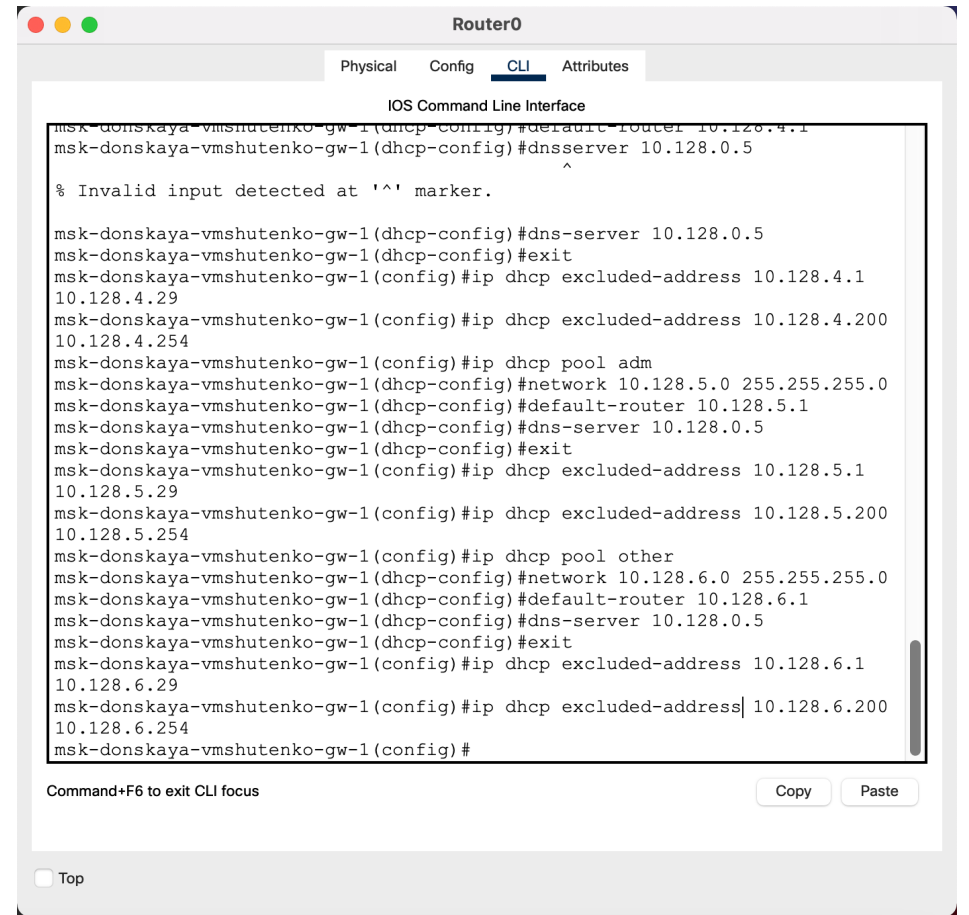
mks-donskaya-vmshutenko-gw-1(config)#ip name-server 10.128.0.5
mks-donskaya-vmshutenko-gw-1(config)#service dhcp
mks-donskaya-vmshutenko-gw-1(config)#ip dhcp pool dk
mks-donskaya-vmshutenko-gw-1(dhcp-config)#network 10.128.3.0 255.255.255.0
mks-donskaya-vmshutenko-gw-1(dhcp-config)#default-router 10.128.3.1
mks-donskaya-vmshutenko-gw-1(dhcp-config)#dns-server 10.128.0.5
mks-donskaya-vmshutenko-gw-1(dhcp-config)#exit
mks-donskaya-vmshutenko-gw-1(config)#ip dhcp excluded-address 10.128.3.1
10.128.3.29
mks-donskaya-vmshutenko-gw-1(config)#ip dhcp excluded-address 10.128.3.200
10.128.3.254
mks-donskaya-vmshutenko-gw-1(config)#ip dhcp pool departments
mks-donskaya-vmshutenko-gw-1(dhcp-config)#network 10.128.4.0 255.255.255.0
mks-donskaya-vmshutenko-gw-1(dhcp-config)#default-router 10.128.4.1
mks-donskaya-vmshutenko-gw-1(dhcp-config)#dnsserver 10.128.0.5
^
% Invalid input detected at '^' marker.

mks-donskaya-vmshutenko-gw-1(dhcp-config)#dns-server 10.128.0.5
mks-donskaya-vmshutenko-gw-1(dhcp-config)#exit
mks-donskaya-vmshutenko-gw-1(config)#
```

Command+F6 to exit CLI focus

Copy Paste

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Router0

Physical Config **CLI** Attributes

IOS Command Line Interface

```
mks-donskaya-vmshutenko-gw-1(dhcp-config)#default-router 10.128.4.1
mks-donskaya-vmshutenko-gw-1(dhcp-config)#dnsserver 10.128.0.5
^
% Invalid input detected at '^' marker.

mks-donskaya-vmshutenko-gw-1(dhcp-config)#dns-server 10.128.0.5
mks-donskaya-vmshutenko-gw-1(dhcp-config)#exit
mks-donskaya-vmshutenko-gw-1(config)#ip dhcp excluded-address 10.128.4.1
10.128.4.29
mks-donskaya-vmshutenko-gw-1(config)#ip dhcp excluded-address 10.128.4.200
10.128.4.254
mks-donskaya-vmshutenko-gw-1(config)#ip dhcp pool adm
mks-donskaya-vmshutenko-gw-1(dhcp-config)#network 10.128.5.0 255.255.255.0
mks-donskaya-vmshutenko-gw-1(dhcp-config)#default-router 10.128.5.1
mks-donskaya-vmshutenko-gw-1(dhcp-config)#dns-server 10.128.0.5
mks-donskaya-vmshutenko-gw-1(dhcp-config)#exit
mks-donskaya-vmshutenko-gw-1(config)#ip dhcp excluded-address 10.128.5.1
10.128.5.29
mks-donskaya-vmshutenko-gw-1(config)#ip dhcp excluded-address 10.128.5.200
10.128.5.254
mks-donskaya-vmshutenko-gw-1(config)#ip dhcp pool other
mks-donskaya-vmshutenko-gw-1(dhcp-config)#network 10.128.6.0 255.255.255.0
mks-donskaya-vmshutenko-gw-1(dhcp-config)#default-router 10.128.6.1
mks-donskaya-vmshutenko-gw-1(dhcp-config)#dns-server 10.128.0.5
mks-donskaya-vmshutenko-gw-1(dhcp-config)#exit
mks-donskaya-vmshutenko-gw-1(config)#ip dhcp excluded-address 10.128.6.1
10.128.6.29
mks-donskaya-vmshutenko-gw-1(config)#ip dhcp excluded-address 10.128.6.200
10.128.6.254
mks-donskaya-vmshutenko-gw-1(config)#
```

Command+F6 to exit CLI focus

Copy Paste

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Ping



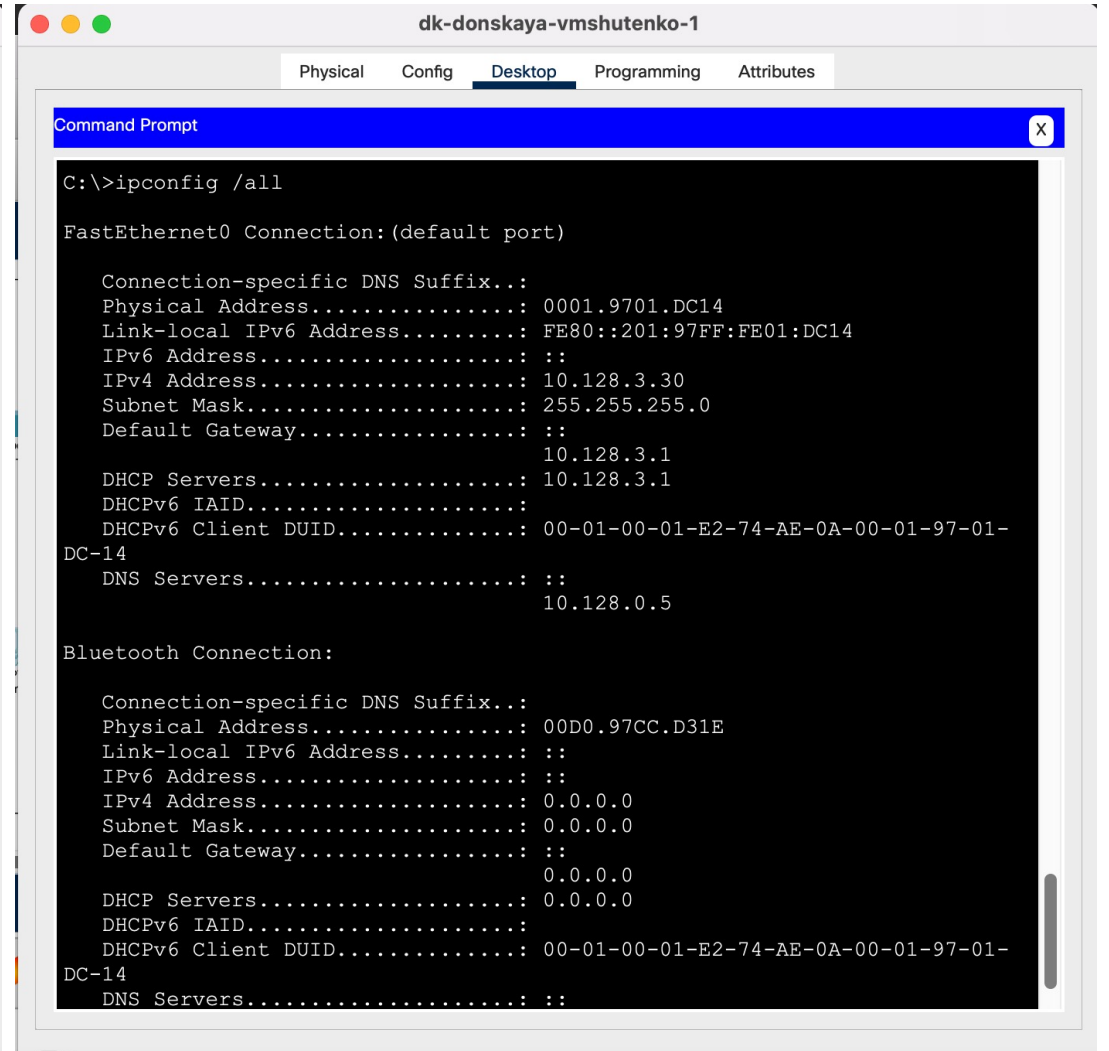
```
Command Prompt
C:\>ipconfig /all

FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...: 
    Physical Address.....: 0001.9701.DC14
    Link-local IPv6 Address.....: FE80::201:97FF:FE01:DC14
    IPv6 Address.....: ::
    IPv4 Address.....: 10.128.3.201
    Subnet Mask.....: 255.255.255.0
    Default Gateway.....: ::
                        10.128.3.1
    DHCP Servers.....: 0.0.0.0
    DHCPv6 IAID.....: 
    DHCPv6 Client DUID.....: 00-01-00-01-E2-74-AE-0A-00-01-97-01-DC-14
    DNS Servers.....: ::
                        0.0.0.0

Bluetooth Connection:

    Connection-specific DNS Suffix...: 
    Physical Address.....: 00D0.97CC.D31E
    Link-local IPv6 Address.....: ::
    IPv6 Address.....: ::
    IPv4 Address.....: 0.0.0.0
    Subnet Mask.....: 0.0.0.0
    Default Gateway.....: ::
                        0.0.0.0
    DHCP Servers.....: 0.0.0.0
    DHCPv6 IAID.....: 
    DHCPv6 Client DUID.....: 00-01-00-01-E2-74-AE-0A-00-01-97-01-DC-14
    DNS Servers.....: ::
                        0.0.0.0
```



```
Command Prompt
C:\>ipconfig /all

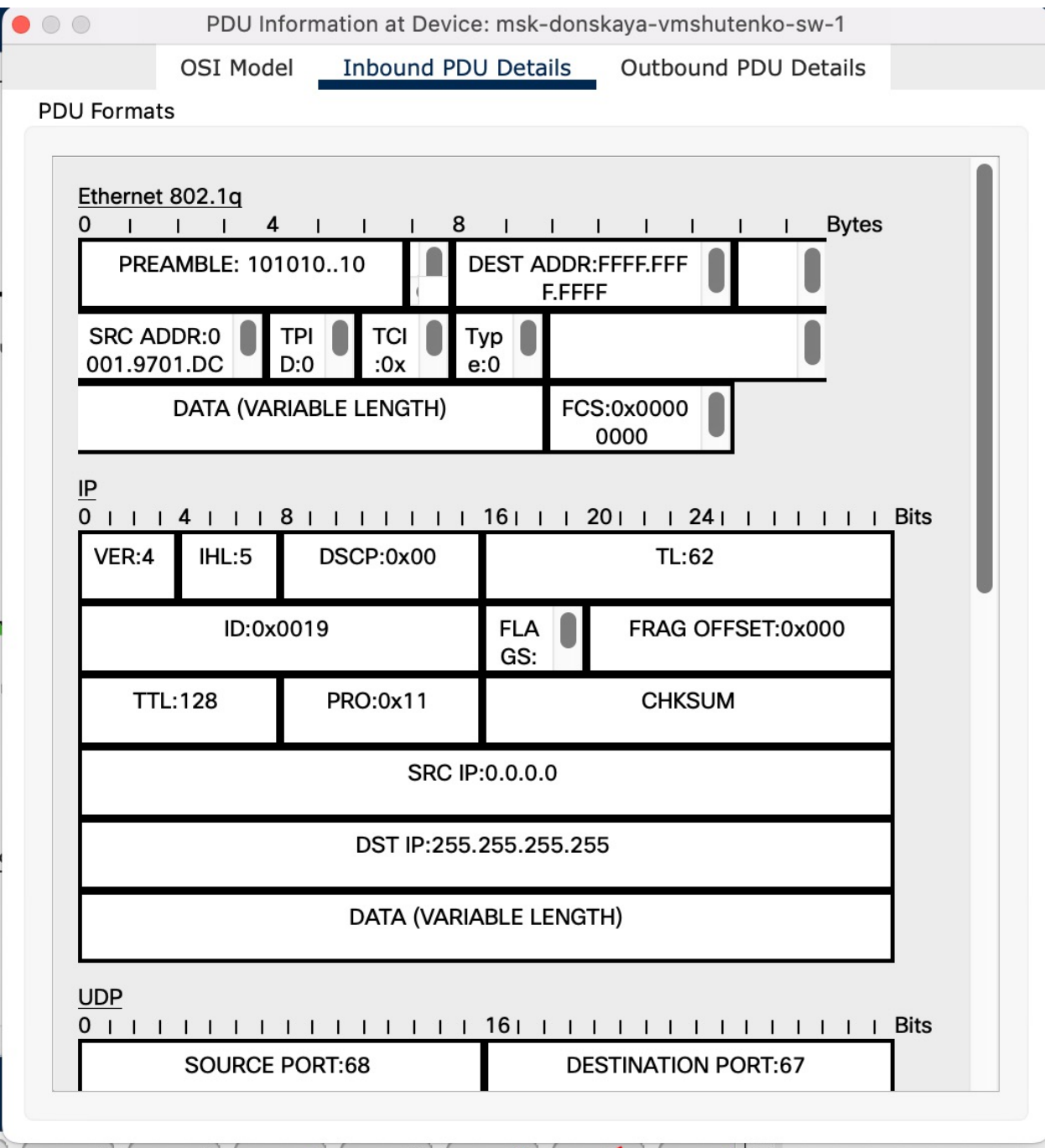
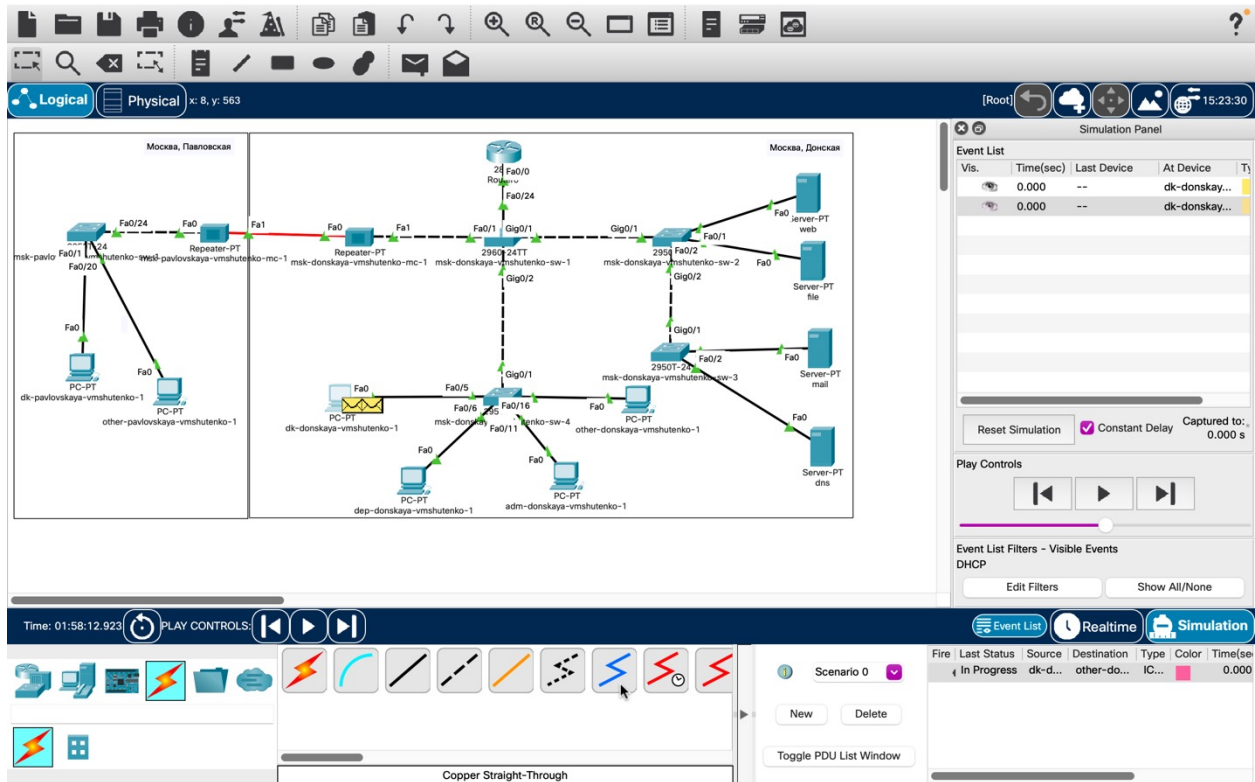
FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...: 
    Physical Address.....: 0001.9701.DC14
    Link-local IPv6 Address.....: FE80::201:97FF:FE01:DC14
    IPv6 Address.....: ::
    IPv4 Address.....: 10.128.3.30
    Subnet Mask.....: 255.255.255.0
    Default Gateway.....: ::
                        10.128.3.1
    DHCP Servers.....: 10.128.3.1
    DHCPv6 IAID.....: 
    DHCPv6 Client DUID.....: 00-01-00-01-E2-74-AE-0A-00-01-97-01-DC-14
    DNS Servers.....: ::
                        10.128.0.5

Bluetooth Connection:

    Connection-specific DNS Suffix...: 
    Physical Address.....: 00D0.97CC.D31E
    Link-local IPv6 Address.....: ::
    IPv6 Address.....: ::
    IPv4 Address.....: 0.0.0.0
    Subnet Mask.....: 0.0.0.0
    Default Gateway.....: ::
                        0.0.0.0
    DHCP Servers.....: 0.0.0.0
    DHCPv6 IAID.....: 
    DHCPv6 Client DUID.....: 00-01-00-01-E2-74-AE-0A-00-01-97-01-DC-14
    DNS Servers.....: ::
```


Запуск симуляции



Итоги выполнения работы

1. Я добавила DNS-записи для домена `donskaya.rudn.ru` на сервер `dns`.
2. Настроила DHCP-сервис на маршрутизаторе.
3. Заменяла в конфигурации конечных устройствах статическое распределение адресов на динамическое.
4. При выполнении работы необходимо было учитывать соглашение об именовании (см. раздел 2.5).

Вывод

- Я приобрела практические навыки по настройке динамического распределения IP-адресов посредством протокола DHCP (Dynamic Host Configuration Protocol) в локальной сети.