

Лабораторная Работа №8

Настройка сетевых сервисов. DHCP

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Выполнение лабораторной работы

Приобретение практических навыков по настройке динамического распределения IP-адресов посредством протокола DHCP (Dynamic Host Configuration Protocol) [5] в локальной сети.

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

Добавил dns-сервер

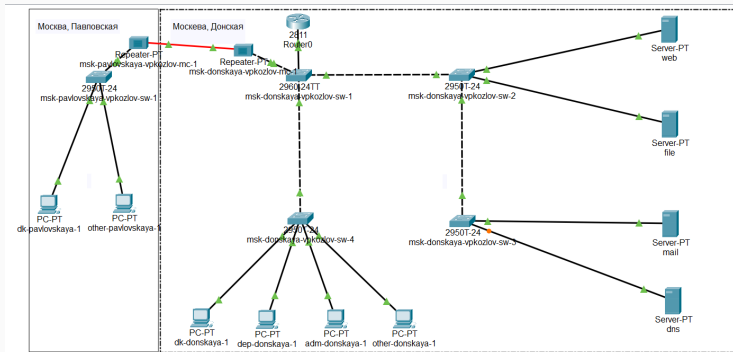
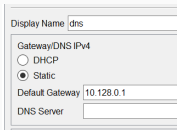


Figure 1: dns-server

Настроил конфигурацию dns-сервера



A screenshot of a network configuration window. The 'Display Name' field is set to 'dns'. Under the 'Gateway/DNS IPv4' section, the 'Static' radio button is selected. The 'Default Gateway' field is set to '10.128.0.1'. The 'DNS Server' field is empty.

Display Name	dns
Gateway/DNS IPv4	
<input type="radio"/> DHCP	
<input checked="" type="radio"/> Static	
Default Gateway	10.128.0.1
DNS Server	

Figure 2: Конфигурация dns-сервера

Добавил dns-записи на сервер

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

Figure 3: dns-записи

Настроил DHCP, часть 1

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

msk-donskaya-vpkozlov-gw-1(config)#ip name-server 10.128.0.5
msk-donskaya-vpkozlov-gw-1(config)#service dhcp
msk-donskaya-vpkozlov-gw-1(config)#
msk-donskaya-vpkozlov-gw-1(config)#ip dhcp pool dk
msk-donskaya-vpkozlov-gw-1(dhcp-config)#network 10.128.3.0 255.255.255.0
msk-donskaya-vpkozlov-gw-1(dhcp-config)#default router 10.128.3.1
^
% Invalid input detected at '^' marker.

msk-donskaya-vpkozlov-gw-1(dhcp-config)#default-router 10.128.3.1
msk-donskaya-vpkozlov-gw-1(dhcp-config)#dns-server 10.128.0.5
msk-donskaya-vpkozlov-gw-1(dhcp-config)#exit
msk-donskaya-vpkozlov-gw-1(config)#ip dhcp excluded-address 10.128.3.1 10.128.3.29
msk-donskaya-vpkozlov-gw-1(config)#ip dhcp excluded-address 10.128.3.200 10.128.3.254
msk-donskaya-vpkozlov-gw-1(config)#
msk-donskaya-vpkozlov-gw-1(config)#ip dhcp pool departments
msk-donskaya-vpkozlov-gw-1(dhcp-config)#network 10.128.4.0 255.255.255.0
msk-donskaya-vpkozlov-gw-1(dhcp-config)#default-router 10.128.4.1
msk-donskaya-vpkozlov-gw-1(dhcp-config)#dns-server 10.128.0.5
msk-donskaya-vpkozlov-gw-1(dhcp-config)#exit
msk-donskaya-vpkozlov-gw-1(config)#ip dhcp excluded-address 10.128.4.1 10.128.4.29
msk-donskaya-vpkozlov-gw-1(config)#ip dhcp excluded address 10.128.4.200 10.128.4.254
^
% Invalid input detected at '^' marker.

msk-donskaya-vpkozlov-gw-1(config)#ip dhcp excluded-address 10.128.4.200 10.128.4.254
msk-donskaya-vpkozlov-gw-1(config)#
```

Figure 4: Настройка DHCP

Настроил DHCP, часть 2

```
msk-donskaya-vpkozlov-gw-1(config)#
msk-donskaya-vpkozlov-gw-1(config)#ip dhcp pool adm
msk-donskaya-vpkozlov-gw-1(dhcp-config)#network 10.128.5.0 255.255.255.0
msk-donskaya-vpkozlov-gw-1(dhcp-config)#default-router 10.128.5.1
msk-donskaya-vpkozlov-gw-1(dhcp-config)#dns-server 10.128.0.5
msk-donskaya-vpkozlov-gw-1(dhcp-config)#exit
msk-donskaya-vpkozlov-gw-1(config)#ip dhcp excluded-address 10.128.5.1
msk-donskaya-vpkozlov-gw-1(config)#ip dhcp excluded-address 10.128.5.1 10.128.5.254
msk-donskaya-vpkozlov-gw-1(config)#ip dhcp excluded address 10.128.5.1 10.128.5.29
^
% Invalid input detected at '^' marker.

msk-donskaya-vpkozlov-gw-1(config)#ip dhcp excluded-address 10.128.5.1 10.128.5.29
msk-donskaya-vpkozlov-gw-1(config)#ip dhcp excluded-address 10.128.5.200 10.128.5.254
msk-donskaya-vpkozlov-gw-1(config)#
msk-donskaya-vpkozlov-gw-1(config)#ip dhcp pool other
msk-donskaya-vpkozlov-gw-1(dhcp-config)#network 10.128.6.0 255.255.255.0
msk-donskaya-vpkozlov-gw-1(dhcp-config)#default-router 10.128.6.1
msk-donskaya-vpkozlov-gw-1(dhcp-config)#dns-server 10.128.0.5
msk-donskaya-vpkozlov-gw-1(dhcp-config)#exit
msk-donskaya-vpkozlov-gw-1(config)#ip dhcp excluded-address 10.128.6.1
msk-donskaya-vpkozlov-gw-1(config)#ip dhcp excluded-address 10.128.6.110.128.6.29
^
% Invalid input detected at '^' marker.

msk-donskaya-vpkozlov-gw-1(config)#ip dhcp excluded-address 10.128.6.1 10.128.6.29
msk-donskaya-vpkozlov-gw-1(config)#ip dhcp excluded-address 10.128.6.200 10.128.6.254
msk-donskaya-vpkozlov-gw-1(config)#exit
msk-donskaya-vpkozlov-gw-1#
%SYS-5-CONFIG_I: Configured from console by console
write memory
Building configuration...
[OK]
msk-donskaya-vpkozlov-gw-1#
```

Figure 5: Настройка DHCP

Посмотрел информацию о пулах DHCP

```
[OK]
msk-donskaya-vpkozlov-gw-1#sh ip dhcp pool

Pool dk :
Utilization mark (high/low)      : 100 / 0
Subnet size (first/next)          : 0 / 0
Total addresses                   : 254
Leased addresses                  : 0
Excluded addresses                : 11
Pending event                     : none

1 subnet is currently in the pool
Current index      IP address range      Leased/Excluded/Total
10.128.3.1         10.128.3.1         - 10.128.3.254      0 / 11 / 254

Pool departments :
Utilization mark (high/low)      : 100 / 0
Subnet size (first/next)          : 0 / 0
Total addresses                   : 254
Leased addresses                  : 0
Excluded addresses                : 11
Pending event                     : none

1 subnet is currently in the pool
Current index      IP address range      Leased/Excluded/Total
10.128.4.1         10.128.4.1         - 10.128.4.254      0 / 11 / 254

Pool adm :
Utilization mark (high/low)      : 100 / 0
Subnet size (first/next)          : 0 / 0
Total addresses                   : 254
Leased addresses                  : 0
Excluded addresses                : 11
Pending event                     : none

1 subnet is currently in the pool
Current index      IP address range      Leased/Excluded/Total
10.128.5.1         10.128.5.1         - 10.128.5.254      0 / 11 / 254

Pool other :
Utilization mark (high/low)      : 100 / 0
Subnet size (first/next)          : 0 / 0
Total addresses                   : 254
-
```

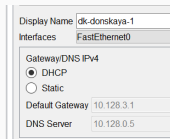
Figure 6: Информация о пулах DHCP

Настроил interface f0/2 на msk-donskaya-vpkozlov-gw -1

```
msk-donskaya-vpkozlov-3(CONF) #
msk-donskaya-vpkozlov-3(config)#interface f0/2
msk-donskaya-vpkozlov-3(config-if)#switchport mode access
msk-donskaya-vpkozlov-3(config-if)#switchport access vlan 3
msk-donskaya-vpkozlov-3(config-if)#exit
msk-donskaya-vpkozlov-3(config)#exit
msk-donskaya-vpkozlov-3#
!SYS-5-CONFIG_I: Configured from console by console
write memory
Building configuration...
[OK]
msk-donskaya-vpkozlov-3#
```

Figure 7: Настройка interface f0/2

На оконечных устройствах заменил в настройках статическое распределение адресов на динамическое



The screenshot shows a network configuration window for a device named 'dk-donskaya-1'. The 'Interfaces' section is set to 'FastEthernet0'. Under the 'Gateway/DNS IPv4' section, the 'DHCP' radio button is selected, and the 'Static' radio button is unselected. The 'Default Gateway' is set to '10.128.3.1' and the 'DNS Server' is set to '10.128.0.5'.

Display Name	dk-donskaya-1
Interfaces	FastEthernet0
Gateway/DNS IPv4	
<input checked="" type="radio"/> DHCP	
<input type="radio"/> Static	
Default Gateway	10.128.3.1
DNS Server	10.128.0.5

Figure 8: Динамическое распределение адресов

```
C:\>
C:\>ping 10.128.0.5

Pinging 10.128.0.5 with 32 bytes of data:

Request timed out.
Reply from 10.128.0.5: bytes=32 time<1ms TTL=127
Reply from 10.128.0.5: bytes=32 time<1ms TTL=127
Reply from 10.128.0.5: bytes=32 time<1ms TTL=127

Ping statistics for 10.128.0.5:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping www.donskaya.rudn.ru

Pinging 10.128.0.2 with 32 bytes of data:

Request timed out.
Reply from 10.128.0.2: bytes=32 time<1ms TTL=127
Reply from 10.128.0.2: bytes=32 time<1ms TTL=127
Reply from 10.128.0.2: bytes=32 time<1ms TTL=127

Ping statistics for 10.128.0.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Figure 9: Пингование www.donskaya.rudn.ru

Открыл www.donskaya.rudn.ru в браузере

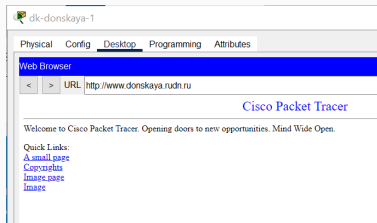


Figure 10: www.donskaya.rudn.ru в браузере

Приобрел практические навыки по настройке динамического распределения IP-адресов посредством протокола DHCP (Dynamic Host Configuration Protocol) [5] в локальной сети.