

Лабораторная работы №8

Настройка сетевых сервисов. DHCP

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Информация

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Ход работы



Рис. 1: Создание нового проекта

Добавление сервера dns

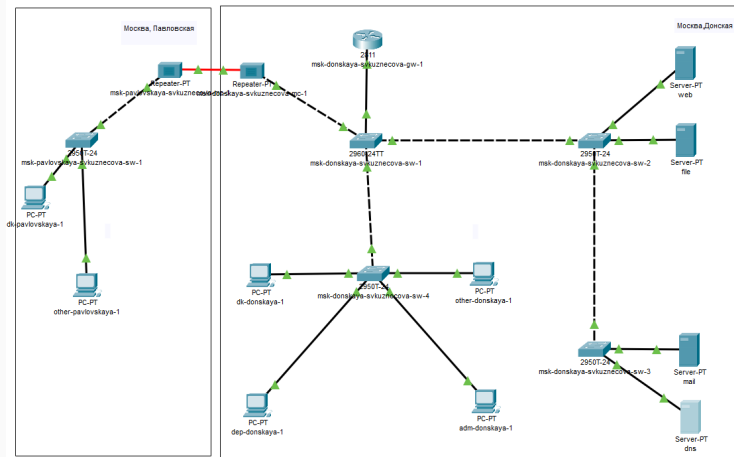


Рис. 2: Добавление сервера dns и подключение его к коммутатору msk-donskaya-sw-3

Активация порта



The screenshot shows the Mikrotik WinBox interface with the 'CLI' tab selected. The title bar reads 'mik-donskaya-vkuzmecoova-sa-3'. The main window is titled 'ROS Command Line Interface' and displays the following configuration:

```

/
/
line cos 0
password ? 0123456789012
login
/
line vty 0 4
password ? 0123456789012
login
line vty 5 15
login
/
/
/
end

mak-donskaya-vkuzmecoova-sw-34
mak-donskaya-vkuzmecoova-sw-35
mak-donskaya-vkuzmecoova-sw-36
mak-donskaya-vkuzmecoova-sw-37
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mak-donskaya-vkuzmecoova-sw-96
mak-donskaya-vkuzmecoova-sw-97
mak-donskaya-vkuzmecoova-sw-98
mak-donskaya-vkuzmecoova-sw-99
mak-donskaya-vkuzmecoova-sw-100

Enter configuration commands, one per line. End with CTRL/Z.
mak-donskaya-vkuzmecoova-sw-3(config)#int fa0/2
mak-donskaya-vkuzmecoova-sw-3(config-if)#switchport mode access
^
^ Invalid input detected at '^' marker.

mak-donskaya-vkuzmecoova-sw-3(config-if)#switchport mode access
mak-donskaya-vkuzmecoova-sw-3(config-if)#switchport access vlan 3
mak-donskaya-vkuzmecoova-sw-3(config-if)#exit
mak-donskaya-vkuzmecoova-sw-3(config)#exit
mak-donskaya-vkuzmecoova-sw-3
MIPS-3-COMFIG_1: Configured from console by console

mak-donskaya-vkuzmecoova-sw-3#wr m
Building configuration...
[OK]
mak-donskaya-vkuzmecoova-sw-3#
```

Рис. 3: Активация порта на коммутаторе

Настройка конфигурации сервера

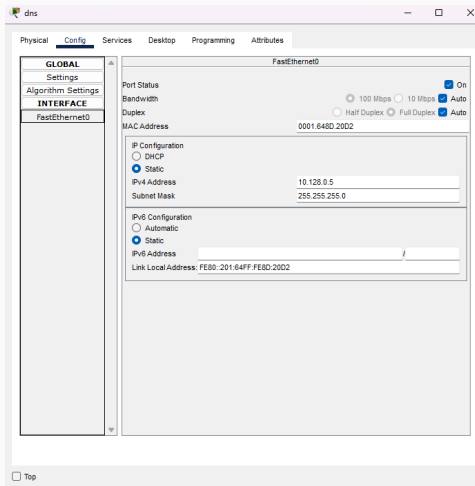


Рис. 4: Настройка конфигурации сервера

Настройка сервиса DNS

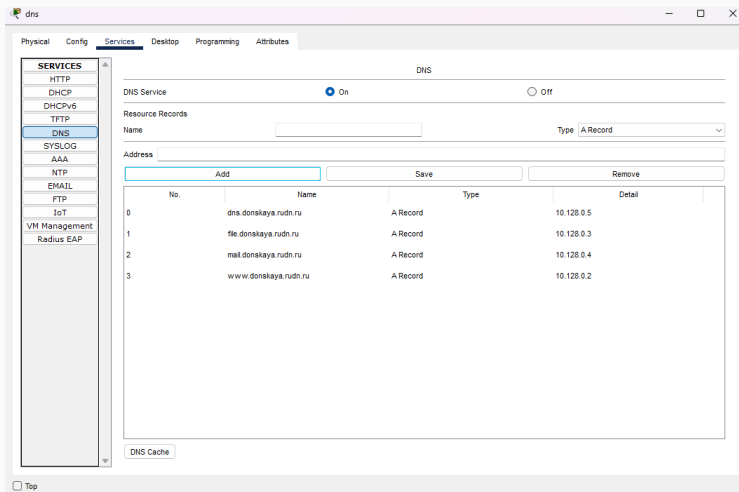


Рис. 5: Настройка сервиса DNS

Настроим DHCP-сервис на маршрутизаторе

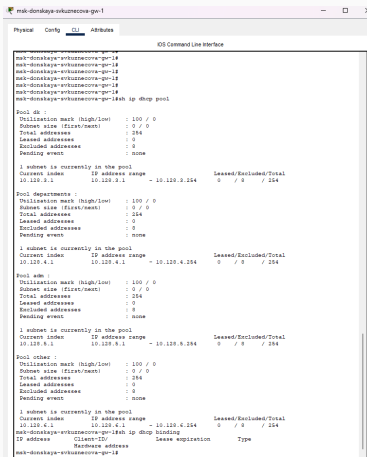


Рис. 6: Настройка DHCP-сервис на маршрутизаторе

На оконечных устройствах замена настройки статическое распределение адресов на динамическое.

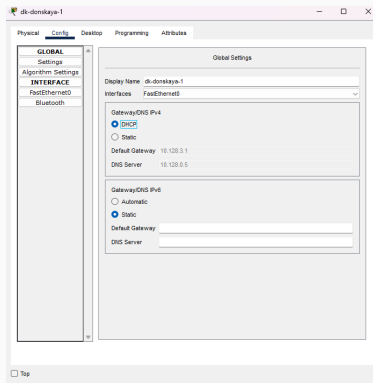


Рис. 7: Замена статического распределение адресов на динамическое

Проверка, какие адреса выделяются оконечным устройствам

```

C:\>
C:\>ipconfig

FastEthernet0 Connection: (default port)

    Connection-specific DNS Suffix...: 
    Link-local IPv6 Address . . . . .: FE80::250:FFF:FE48:1465
    IPv4 Address. . . . .: 10.128.3.30
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::
                                   10.128.3.1

Bluetooth Connection:

    Connection-specific DNS Suffix...: 
    Link-local IPv6 Address . . . . .: ::
    IPv4 Address. . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::
                                   0.0.0.0

C:\>ipconfig /all

FastEthernet0 Connection: (default port)

    Connection-specific DNS Suffix...: 
    Physical Address. . . . .: 0050.0F6B.1655
    Link-local IPv6 Address . . . . .: FE80::250:FFF:FE48:1465
    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. . . . .: 00-01-00-01-58-97-8A-97-00-80-0F-68-16-55
    DNS Servers . . . . .: ::
                                   10.128.0.5

Bluetooth Connection:

    Connection-specific DNS Suffix...: 
    Physical Address. . . . .: 0001.64BE.E44E
    Link-local 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. . . . .: 00-01-00-01-58-97-8A-97-00-80-0F-68-16-55
    DNS Servers . . . . .: ::
                                   10.128.0.5
```

Рис. 8: Проверка выделения адресов оконечных устройств

Проверка доступности устройств из разных подсетей

```
C:\>ping mail.donskaya.rudn.ru

Pinging 10.128.0.4 with 32 bytes of data:

Request timed out.
Reply from 10.128.0.4: bytes=32 time<1ms TTL=127
Reply from 10.128.0.4: bytes=32 time<1ms TTL=127
Reply from 10.128.0.4: bytes=32 time<1ms TTL=127

Ping statistics for 10.128.0.4:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

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

Pinging 10.128.0.3 with 32 bytes of data:

Request timed out.
Reply from 10.128.0.3: bytes=32 time<1ms TTL=127
Reply from 10.128.0.3: bytes=32 time<1ms TTL=127
Reply from 10.128.0.3: bytes=32 time<1ms TTL=127

Ping statistics for 10.128.0.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

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

Pinging 10.128.0.5 with 32 bytes of data:

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
Reply from 10.128.0.5: bytes=32 time=8ms TTL=127

Ping statistics for 10.128.0.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 8ms, Average = 1ms
```

Рис. 9: Проверка доступности устройств из разных подсетей

Запрос адреса по протоколу DHCP

Simulation Panel

Event List

Via	Time(sec)	Last Device	At Device	Type
	0.000	—	di-donskaya-1	DHCP
	0.000	—	di-donskaya-1	DHCP
	0.001	di-donskaya-1	msk-donskaya-svluznecova-sw-4	DHCP
	0.001	—	di-donskaya-1	DHCP
	0.002	di-donskaya-1	msk-donskaya-svluznecova-sw-4	DHCP
	0.002	msk-donskaya-svluznecova-sw-4	msk-donskaya-svluznecova-sw-1	DHCP
	0.003	msk-donskaya-svluznecova-sw-4	msk-donskaya-svluznecova-sw-1	DHCP
	0.003	msk-donskaya-svluznecova-sw-1	msk-donskaya-svluznecova-mc-1	DHCP
	0.003	msk-donskaya-svluznecova-sw-1	msk-donskaya-svluznecova-gw-1	DHCP
	0.003	msk-donskaya-svluznecova-sw-1	msk-donskaya-svluznecova-sw-2	DHCP
	0.004	msk-donskaya-svluznecova-sw-1	msk-donskaya-svluznecova-mc-1	DHCP
	0.004	msk-donskaya-svluznecova-sw-1	msk-donskaya-svluznecova-gw-1	DHCP
	0.004	msk-donskaya-svluznecova-sw-1	msk-donskaya-svluznecova-sw-2	DHCP
	0.004	msk-donskaya-svluznecova-mc-1	msk-pavlovskaya-svluznecova-mc-1	DHCP
	0.005	msk-donskaya-svluznecova-mc-1	msk-pavlovskaya-svluznecova-mc-1	DHCP
	0.005	msk-pavlovskaya-svluznecova-mc-1	msk-pavlovskaya-svluznecova-sw-1	DHCP
	0.006	msk-pavlovskaya-svluznecova-mc-1	msk-pavlovskaya-svluznecova-sw-1	DHCP
	0.006	msk-pavlovskaya-svluznecova-sw-1	di-pavlovskaya-1	DHCP
	0.007	msk-pavlovskaya-svluznecova-sw-1	di-pavlovskaya-1	DHCP
	1.514	msk-donskaya-svluznecova-gw-1	msk-donskaya-svluznecova-sw-1	DHCP
	1.515	msk-donskaya-svluznecova-sw-1	msk-donskaya-svluznecova-mc-1	DHCP
	1.515	msk-donskaya-svluznecova-sw-1	msk-donskaya-svluznecova-sw-2	DHCP
	1.515	msk-donskaya-svluznecova-sw-1	msk-donskaya-svluznecova-sw-4	DHCP
	1.516	msk-donskaya-svluznecova-mc-1	msk-pavlovskaya-svluznecova-mc-1	DHCP

Reset Simulation ☒ Constant Delay

Captured to: 67.834 s

Play Controls

Event List Filters - Visible Events
DHCP, New ACL Filter

Edit Filters Show AllNone

Рис. 10: Режим симуляции

Выводы

В ходе выполнения лабораторной работы мы приобрели практические навыки по настройке динамического распределения IP адресов посредством протокола DHCP (Dynamic Host Configuration Protocol) в локальной сети.

Спасибо за внимание!