

Презентация по лабораторной работе №6

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Настроить статическую маршрутизацию VLAN в сети.

1. Добавить в локальную сеть маршрутизатор, провести его первоначальную настройку.
2. Настроить статическую маршрутизацию VLAN.
3. При выполнении работы необходимо учитывать соглашение об именовании (см. раздел 2.5).

Выполнение лабораторной работы

Размещение маршрутизатора Cisco 2811

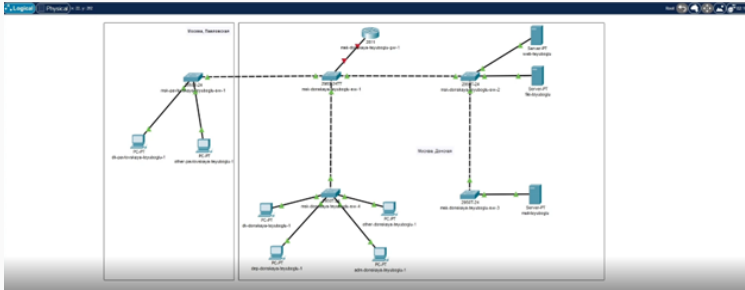


Рис. 1: Размещение маршрутизатора

Конфигурация маршрутизатора

```
User Access Verification

Password:

msk-donskaya-teyuboglu-sw-1>en
Password:
msk-donskaya-teyuboglu-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-teyuboglu-sw-1(config)#int f0/24
msk-donskaya-teyuboglu-sw-1(config-if)#sw mode trunk
msk-donskaya-teyuboglu-sw-1(config-if)#^Z
msk-donskaya-teyuboglu-sw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-teyuboglu-sw-1#
```

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Рис. 2: Конфигурируем маршрутизатор

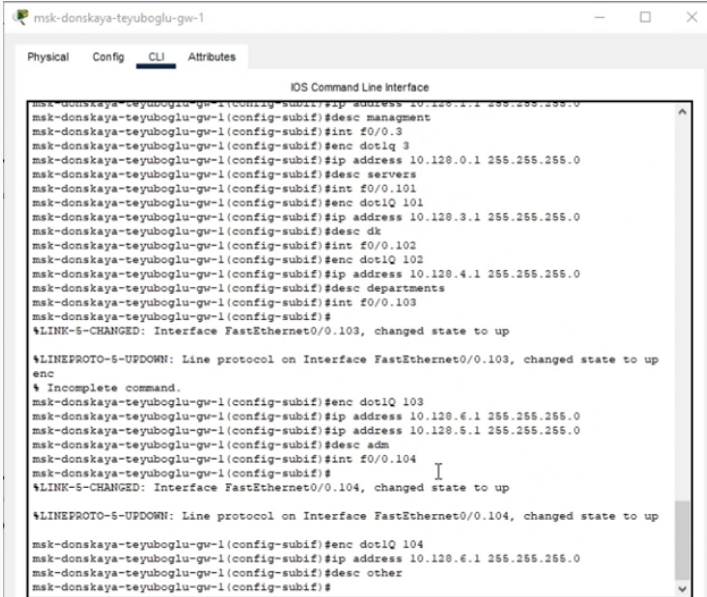
Настройка виртуального интерфейса

```
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#host msk-donskaya-teyuboglu-gw-1
msk-donskaya-teyuboglu-gw-1(config)#line vty 0 4
msk-donskaya-teyuboglu-gw-1(config-line)#pass cisco
msk-donskaya-teyuboglu-gw-1(config-line)#login
msk-donskaya-teyuboglu-gw-1(config-line)#line cons 0
msk-donskaya-teyuboglu-gw-1(config-line)#pass cisco
msk-donskaya-teyuboglu-gw-1(config-line)#login
msk-donskaya-teyuboglu-gw-1(config-line)#enable secret cisco
msk-donskaya-teyuboglu-gw-1(config)#service passw
msk-donskaya-teyuboglu-gw-1(config)#user admin priv 1 secret cisco
msk-donskaya-teyuboglu-gw-1(config)#ip domain-name donskeya.rudn.edu
msk-donskaya-teyuboglu-gw-1(config)#crypto key gen rsa
The name for the keys will be: msk-donskaya-teyuboglu-gw-1.donskeya.rudn.edu
Choose the size of the key modulus in the range of 360 to 2048 for your
  General Purpose Keys. Choosing a key modulus greater than 512 may take
  a few minutes.

How many bits in the modulus [512]: 512
% Generating 512 bit RSA keys, keys will be non-exportable...[OK]
```

Рис. 3: Настройка виртуальных интерфейсов

Настройка виртуального интерфейса



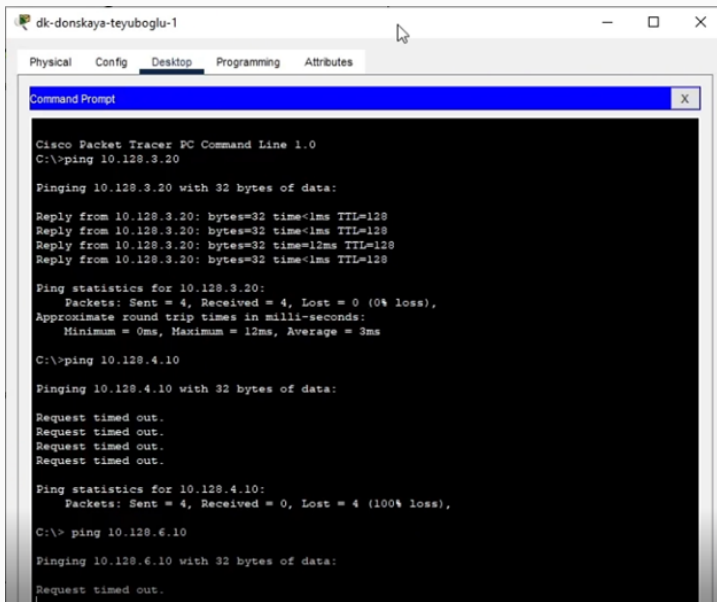
```
msk-donskaya-teyuboglu-gw-1
Physical Config CLI Attributes
IOS Command Line Interface
msk-donskaya-teyuboglu-gw-1(config-subif)#ip address 10.128.1.1 255.255.255.0
msk-donskaya-teyuboglu-gw-1(config-subif)#desc managment
msk-donskaya-teyuboglu-gw-1(config-subif)#int f0/0.3
msk-donskaya-teyuboglu-gw-1(config-subif)#enc dot1q 3
msk-donskaya-teyuboglu-gw-1(config-subif)#ip address 10.128.0.1 255.255.255.0
msk-donskaya-teyuboglu-gw-1(config-subif)#desc servers
msk-donskaya-teyuboglu-gw-1(config-subif)#int f0/0.101
msk-donskaya-teyuboglu-gw-1(config-subif)#enc dot1Q 101
msk-donskaya-teyuboglu-gw-1(config-subif)#ip address 10.128.3.1 255.255.255.0
msk-donskaya-teyuboglu-gw-1(config-subif)#desc dk
msk-donskaya-teyuboglu-gw-1(config-subif)#int f0/0.102
msk-donskaya-teyuboglu-gw-1(config-subif)#enc dot1Q 102
msk-donskaya-teyuboglu-gw-1(config-subif)#ip address 10.128.4.1 255.255.255.0
msk-donskaya-teyuboglu-gw-1(config-subif)#desc departments
msk-donskaya-teyuboglu-gw-1(config-subif)#int f0/0.103
msk-donskaya-teyuboglu-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.103, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.103, changed state to up
enc
% Incomplete command.
msk-donskaya-teyuboglu-gw-1(config-subif)#enc dot1Q 103
msk-donskaya-teyuboglu-gw-1(config-subif)#ip address 10.128.6.1 255.255.255.0
msk-donskaya-teyuboglu-gw-1(config-subif)#ip address 10.128.5.1 255.255.255.0
msk-donskaya-teyuboglu-gw-1(config-subif)#desc adm
msk-donskaya-teyuboglu-gw-1(config-subif)#int f0/0.104
msk-donskaya-teyuboglu-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.104, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.104, changed state to up

msk-donskaya-teyuboglu-gw-1(config-subif)#enc dot1Q 104
msk-donskaya-teyuboglu-gw-1(config-subif)#ip address 10.128.6.1 255.255.255.0
msk-donskaya-teyuboglu-gw-1(config-subif)#desc other
msk-donskaya-teyuboglu-gw-1(config-subif)#
```

Проверка доступности



The screenshot shows a Cisco Packet Tracer PC Command Line window for a device named 'dk-donskaya-teyuboglu-1'. The window has tabs for 'Physical', 'Config', 'Desktop', 'Programming', and 'Attributes', with 'Desktop' selected. Inside the window is a 'Command Prompt' box with a black background and white text. The text shows a series of commands and their outputs: a successful ping to 10.128.3.20, a failed ping to 10.128.4.10 (all requests timed out), and the start of a ping to 10.128.6.10.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.128.3.20

Pinging 10.128.3.20 with 32 bytes of data:

Reply from 10.128.3.20: bytes=32 time<1ms TTL=128
Reply from 10.128.3.20: bytes=32 time<1ms TTL=128
Reply from 10.128.3.20: bytes=32 time=12ms TTL=128
Reply from 10.128.3.20: bytes=32 time<1ms TTL=128

Ping statistics for 10.128.3.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 12ms, Average = 3ms

C:\>ping 10.128.4.10

Pinging 10.128.4.10 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.128.4.10:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\> ping 10.128.6.10

Pinging 10.128.6.10 with 32 bytes of data:

Request timed out.
```

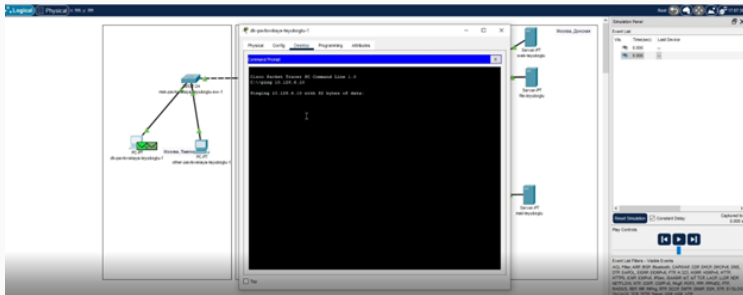


Рис. 6: Режим симуляции и изучение содержимого

Режим симуляции и изучение содержимого

PDU Information at Device: msk-donskaya-teyuboglu-gw-1

OSI Model

Inbound PDU Details

Outbound PDU Details

PDU Formats

Ethernet 802.1q

0																4																8																																Bytes																																											
PREAMBLE: 101010..10																																																↑				DEST ADDR: 00E0.8F47.6E01																																																↑				↑			
																																																↓																																																				↓				↓			
SRC ADDR: 0001.C736.01D8																								↑				TPID				↑				TCI				↑				Type				↑								↑																																																			
																								↓				:0x8				↓				0x0				↓				e:0x				↓								↓																																																			
DATA (VARIABLE LENGTH)																																																				FCS: 0x00000000																																																							

IP

0				4				8				16				20				24				Bits							
VER:4				IHL:5				DSCP:0x00								TL:128															
ID:0x0008																FLA GS:0				FRAG OFFSET:0x000											
TTL:128								PRO:0x01								CHKSUM															
SRC IP:10.128.6.10																															
DST IP:10.128.3.20																															
DATA (VARIABLE LENGTH)																															

ICMP

Благодаря выполнению данной лабораторной работы, мы научились настраивать статическую маршрутизацию VLAN в сети.