

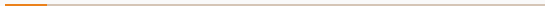
Лабораторная работа №6

Статическая маршрутизация VLAN

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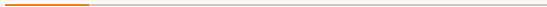
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Информация



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Вводная часть



Цель работы

Настроить статическую маршрутизацию VLAN в сети.

Задание

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

Выполнение лабораторной работы

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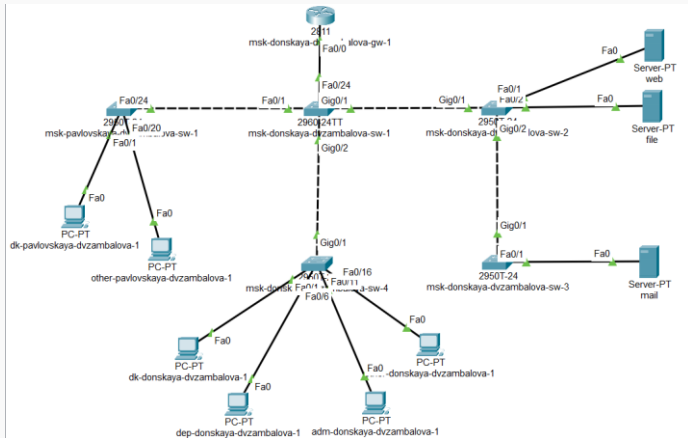
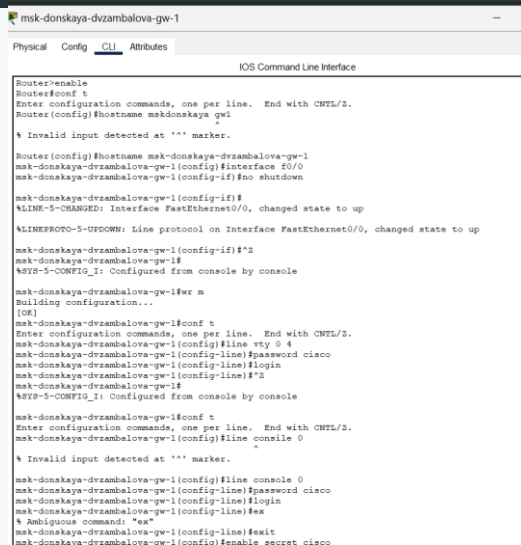


Рис. 1: Логическая область проекта с добавленным маршрутизатором

Выполнение лабораторной работы



```
msk-donskaya-dvzambalova-gw-1
Physical Config CLI Attributes
IOS Command Line Interface

Router>enable
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname mskdonskaya gw1
^
% Invalid input detected at '^' marker.

Router(config)#hostname msk-donskaya-dvzambalova-gw-1
msk-donskaya-dvzambalova-gw-1(config)#interface f0/0
msk-donskaya-dvzambalova-gw-1(config-if)#no shutdown

msk-donskaya-dvzambalova-gw-1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

msk-donskaya-dvzambalova-gw-1(config-if)#^Z
msk-donskaya-dvzambalova-gw-1#
%SYS-5-CONFIG_I: Configured from console by console

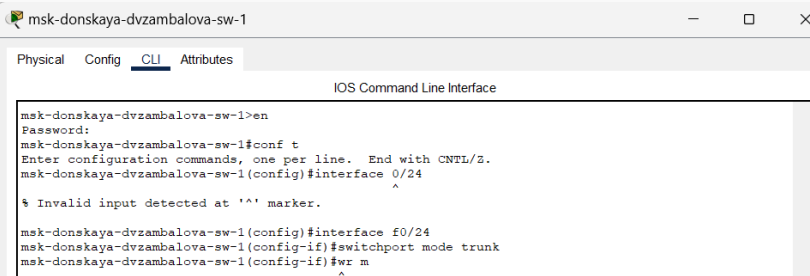
msk-donskaya-dvzambalova-gw-1#wr m
Building configuration...
[OK]
msk-donskaya-dvzambalova-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-dvzambalova-gw-1(config)#line vty 0 4
msk-donskaya-dvzambalova-gw-1(config-line)#password cisco
msk-donskaya-dvzambalova-gw-1(config-line)#login
msk-donskaya-dvzambalova-gw-1(config-line)#^Z
msk-donskaya-dvzambalova-gw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-dvzambalova-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-dvzambalova-gw-1(config)#line console 0
^
% Invalid input detected at '^' marker.

msk-donskaya-dvzambalova-gw-1(config)#line console 0
msk-donskaya-dvzambalova-gw-1(config-line)#password cisco
msk-donskaya-dvzambalova-gw-1(config-line)#login
msk-donskaya-dvzambalova-gw-1(config-line)#ex
% Ambiguous command: "ex"
msk-donskaya-dvzambalova-gw-1(config-line)#exit
msk-donskaya-dvzambalova-gw-1(config)#enable secret cisco
```

Рис. 2: Конфигурация маршрутизатора

Выполнение лабораторной работы



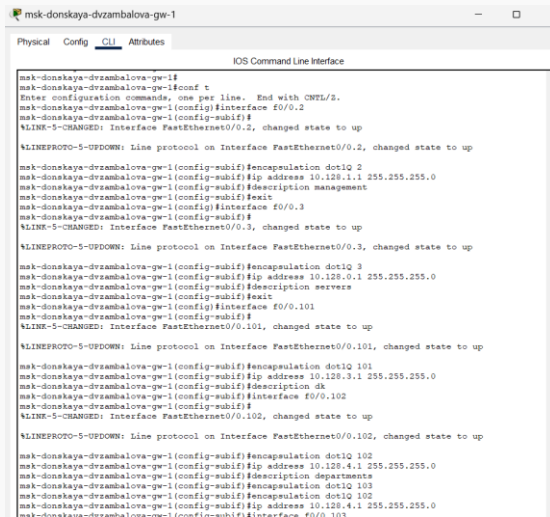
The screenshot shows a web-based interface for a network switch named 'msk-donskaya-dvzambalova-sw-1'. The 'CLI' tab is selected under the 'Config' section. The interface displays the 'IOS Command Line Interface' with a text area containing the following commands and their outputs:

```
msk-donskaya-dvzambalova-sw-1>en
Password:
msk-donskaya-dvzambalova-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-dvzambalova-sw-1(config)#interface 0/24
                                     ^
% Invalid input detected at '^' marker.

msk-donskaya-dvzambalova-sw-1(config)#interface f0/24
msk-donskaya-dvzambalova-sw-1(config-if)#switchport mode trunk
msk-donskaya-dvzambalova-sw-1(config-if)#wr m
                                     ^
```

Рис. 3: Настройка порта 24 как trunk-порта

Выполнение лабораторной работы



```
msk-donskaya-dvzambalova-gw-1
Physical Config CLI Attributes
IOS Command Line Interface

msk-donskaya-dvzambalova-gw-1#
msk-donskaya-dvzambalova-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-dvzambalova-gw-1(config)#interface f0/0.2
msk-donskaya-dvzambalova-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.2, changed state to up

msk-donskaya-dvzambalova-gw-1(config-subif)#encapsulation dot1Q 2
msk-donskaya-dvzambalova-gw-1(config-subif)#ip address 10.128.1.1 255.255.255.0
msk-donskaya-dvzambalova-gw-1(config-subif)#description management
msk-donskaya-dvzambalova-gw-1(config-subif)#exit
msk-donskaya-dvzambalova-gw-1(config)#interface f0/0.3
msk-donskaya-dvzambalova-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.3, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.3, changed state to up

msk-donskaya-dvzambalova-gw-1(config-subif)#encapsulation dot1Q 3
msk-donskaya-dvzambalova-gw-1(config-subif)#ip address 10.128.0.1 255.255.255.0
msk-donskaya-dvzambalova-gw-1(config-subif)#description servers
msk-donskaya-dvzambalova-gw-1(config-subif)#exit
msk-donskaya-dvzambalova-gw-1(config)#interface f0/0.101
msk-donskaya-dvzambalova-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.101, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.101, changed state to up

msk-donskaya-dvzambalova-gw-1(config-subif)#encapsulation dot1Q 101
msk-donskaya-dvzambalova-gw-1(config-subif)#ip address 10.128.3.1 255.255.255.0
msk-donskaya-dvzambalova-gw-1(config-subif)#description dk
msk-donskaya-dvzambalova-gw-1(config-subif)#interface f0/0.102
msk-donskaya-dvzambalova-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.102, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.102, changed state to up

msk-donskaya-dvzambalova-gw-1(config-subif)#encapsulation dot1Q 102
msk-donskaya-dvzambalova-gw-1(config-subif)#ip address 10.128.4.1 255.255.255.0
msk-donskaya-dvzambalova-gw-1(config-subif)#description departments
msk-donskaya-dvzambalova-gw-1(config-subif)#encapsulation dot1Q 103
msk-donskaya-dvzambalova-gw-1(config-subif)#encapsulation dot1Q 102
msk-donskaya-dvzambalova-gw-1(config-subif)#ip address 10.128.4.1 255.255.255.0
msk-donskaya-dvzambalova-gw-1(config-subif)#interface f0/0.103
```

Рис. 4: Конфигурация VLAN-интерфейсов маршрутизатора

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

FastEthernet0 Connection: (default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::20B:BEFF:FECE:2BD2
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 10.128.3.201
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::
                                   10.128.3.1

Bluetooth Connection:

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

C:\>ping 10.128.3.202

Pinging 10.128.3.202 with 32 bytes of data:

Reply from 10.128.3.202: bytes=32 time<1ms TTL=128
Reply from 10.128.3.202: bytes=32 time<1ms TTL=128
Reply from 10.128.3.202: bytes=32 time<1ms TTL=128
Reply from 10.128.3.202: bytes=32 time<1ms TTL=128

Ping statistics for 10.128.3.202:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.128.4.201

Pinging 10.128.4.201 with 32 bytes of data:

Request timed out.
Reply from 10.128.4.201: bytes=32 time<1ms TTL=127
Reply from 10.128.4.201: bytes=32 time<1ms TTL=127
Reply from 10.128.4.201: bytes=32 time<1ms TTL=127

Ping statistics for 10.128.4.201:
```

```
C:\>ping 10.128.0.2

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:\>ping 10.128.0.3

Pinging 10.128.0.3 with 32 bytes of data:

Request timed out.
Reply from 10.128.0.3: bytes=32 time=0ms 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 = 0ms, Average = 2ms

C:\>ping 10.128.0.4

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
```

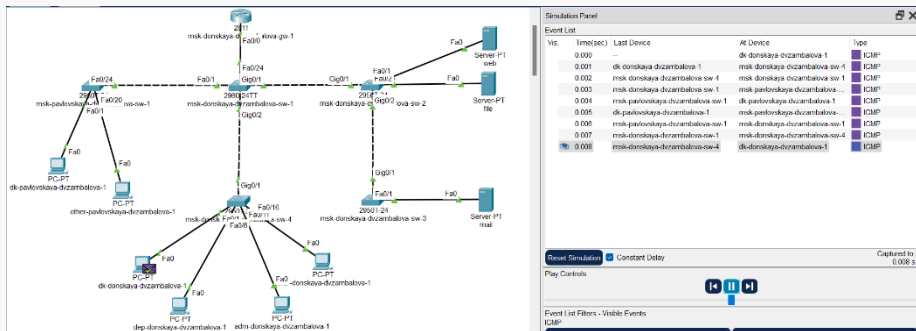


Рис. 7: Передвижения пакета ICMP по сети

Выполнение лабораторной работы

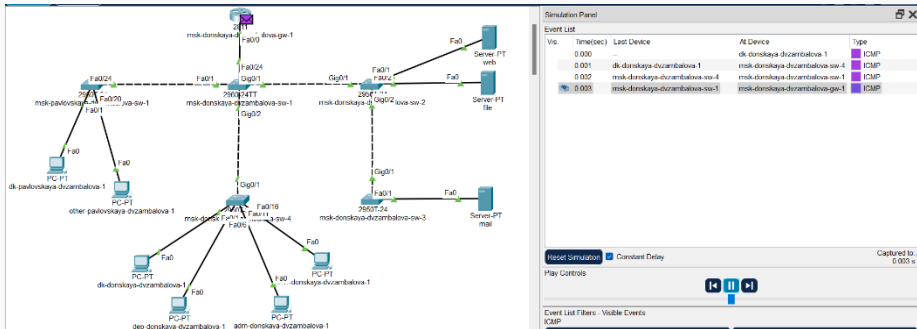


Рис. 8: Передвижения пакета ICMP по сети

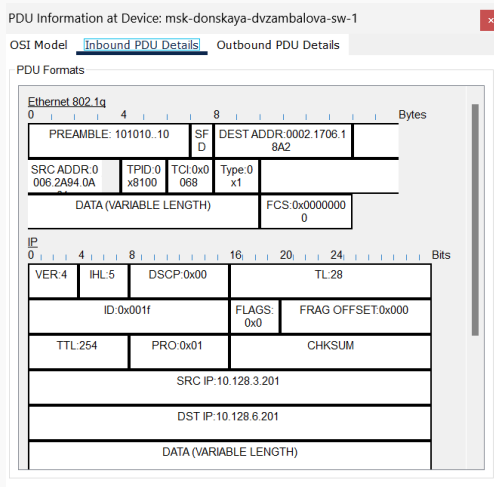


Рис. 9: Информация о PDU

Выводы

В результате выполнения лабораторной работы я настроила статическую маршрутизацию VLAN в сети.