

Лабораторная работа № 5

Конфигурирование VLAN

Демидова Е. А.

8 марта 2024

Российский университет дружбы народов, Москва, Россия

Вводная часть

Цели

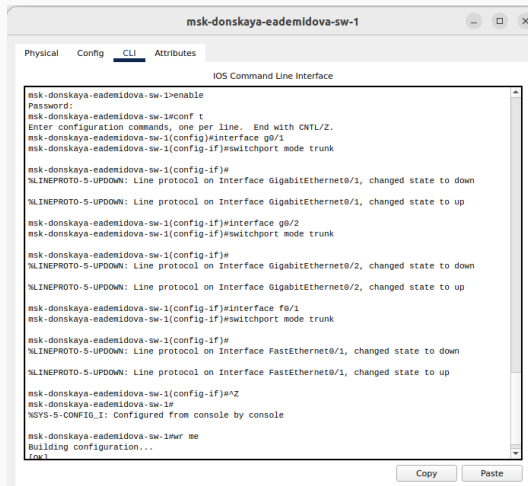
Получить основные навыки по настройке VLAN на коммутаторах сети.

Задачи

1. На коммутаторах сети настроить Trunk-порты.
2. Коммутатор msk-donskaya-sw-1 настроить как VTP-сервер.
3. Остальные коммутаторы настроить как VTP-клиенты, приписать VLAN.
4. На оконечных устройствах указать адрес шлюза и статические IP-адреса.
5. Проверить доступность устройств.

Выполнение лабораторной работы

Настройка Trunk-порта коммутаторов



The screenshot shows a terminal window titled "msk-donskaya-eademidova-sw-1" with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the "IOS Command Line Interface". The following commands and their outputs are shown:

```
msk-donskaya-eademidova-sw-1>enable
Password:
msk-donskaya-eademidova-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-eademidova-sw-1(config)#interface g0/1
msk-donskaya-eademidova-sw-1(config-if)#switchport mode trunk

msk-donskaya-eademidova-sw-1(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

msk-donskaya-eademidova-sw-1(config-if)#interface g0/2
msk-donskaya-eademidova-sw-1(config-if)#switchport mode trunk

msk-donskaya-eademidova-sw-1(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to up

msk-donskaya-eademidova-sw-1(config-if)#interface f0/1
msk-donskaya-eademidova-sw-1(config-if)#switchport mode trunk

msk-donskaya-eademidova-sw-1(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

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

msk-donskaya-eademidova-sw-1#wr me
Building configuration...
[OK]
```

At the bottom right of the terminal window, there are "Copy" and "Paste" buttons.

Рис. 1: Настройка Trunk-порта коммутатора msk-donskaya-eademidova-sw-1

Настройка Trunk-порта коммутаторов

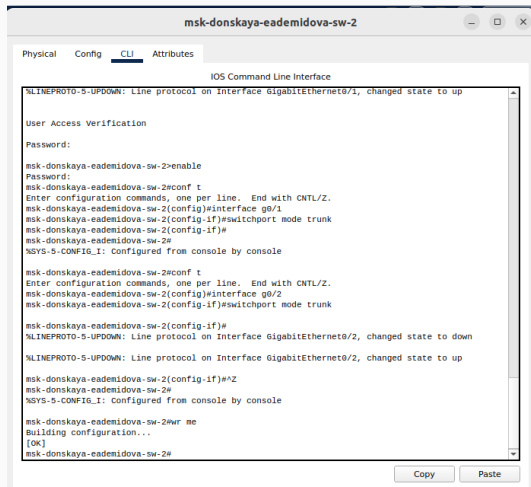


Рис. 2: Настройка Trunk-порта коммутатора msk-donskaya-eademidova-sw-2

Настройка Trunk-порта коммутаторов

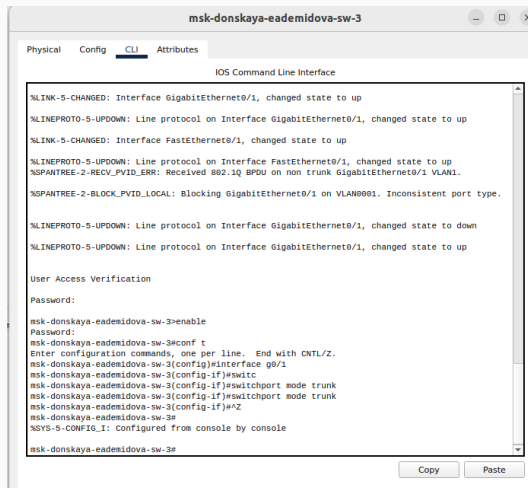
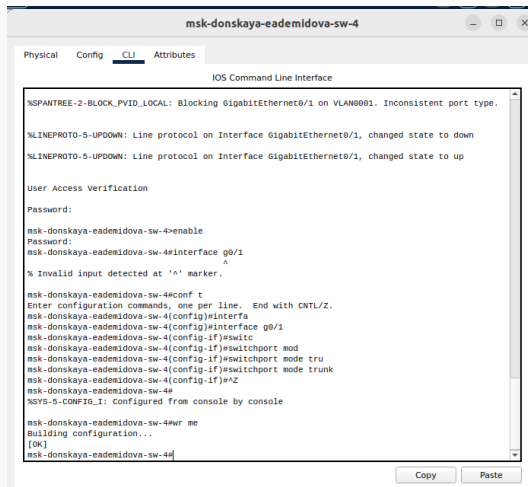


Рис. 3: Настройка Trunk-порта коммутатора msk-donskaya-eademidova-sw-3

Настройка Trunk-порта коммутаторов



The screenshot shows a terminal window titled "msk-donskaya-eademidova-sw-4" with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the "IOS Command Line Interface". The terminal output shows the following sequence of commands and responses:

```
%SPANTREE-2-BLOCK_PVID_LOCAL: Blocking GigabitEthernet0/1 on VLAN0001. Inconsistent port type.

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

User Access Verification
Password:
msk-donskaya-eademidova-sw-4>enable
Password:
msk-donskaya-eademidova-sw-4#interface g0/1
^
% Invalid input detected at '^' marker.

msk-donskaya-eademidova-sw-4#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-eademidova-sw-4(config)#interfa
msk-donskaya-eademidova-sw-4(config)#interface g0/1
msk-donskaya-eademidova-sw-4(config-if)#switc
msk-donskaya-eademidova-sw-4(config-if)#switchport mod
msk-donskaya-eademidova-sw-4(config-if)#switchport mode tru
msk-donskaya-eademidova-sw-4(config-if)#switchport mode trunk
msk-donskaya-eademidova-sw-4(config-if)#^Z
msk-donskaya-eademidova-sw-4#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-eademidova-sw-4#wr me
Building configuration...
[OK]
msk-donskaya-eademidova-sw-4#
```

At the bottom of the terminal window, there are "Copy" and "Paste" buttons.

Рис. 4: Настройка Trunk-порта коммутатора msk-donskaya-eademidova-sw-4

Настройка Trunk-порта коммутаторов

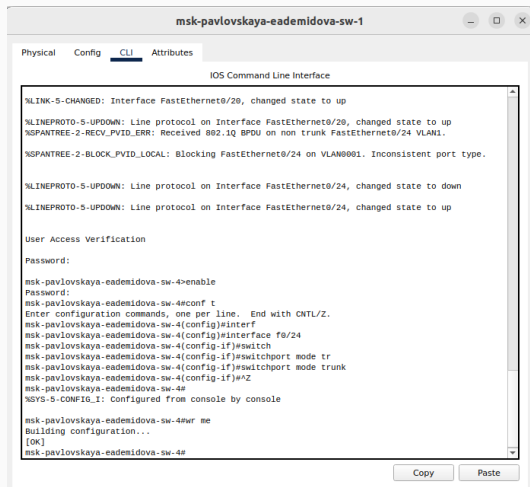



Рис. 5: Настройка Trunk-порта коммутатора msk-pavlovskaya-eademidova-sw-1

Настройка VTP-сервера



```
msk-donskaya-eademidova-sw-1
Physical Config CLI Attributes
IOS Command Line Interface

msk-donskaya-eademidova-sw-1#enable
Password:
msk-donskaya-eademidova-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-eademidova-sw-1(config)#vtp mode server
Device mode already VTP SERVER.
msk-donskaya-eademidova-sw-1(config)#vtp domain donskeya-eademidova
Changing VTP domain name from null to donskeya-eademidova
msk-donskaya-eademidova-sw-1(config)#vtp password cisco
Setting device VLAN database password to cisco
msk-donskaya-eademidova-sw-1(config)#vlan 2
msk-donskaya-eademidova-sw-1(config-vlan)#
%LINK-3-CHANGED: Interface Vlan2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan2, changed state to up

msk-donskaya-eademidova-sw-1(config-vlan)#name management
msk-donskaya-eademidova-sw-1(config-vlan)#vlan 3
msk-donskaya-eademidova-sw-1(config-vlan)#name servers
msk-donskaya-eademidova-sw-1(config-vlan)#vlan 101
msk-donskaya-eademidova-sw-1(config-vlan)#name dh
msk-donskaya-eademidova-sw-1(config-vlan)#vlan 102
msk-donskaya-eademidova-sw-1(config-vlan)#name departaments
msk-donskaya-eademidova-sw-1(config-vlan)#vlan 103
msk-donskaya-eademidova-sw-1(config-vlan)#name adm
msk-donskaya-eademidova-sw-1(config-vlan)#vlan 104
msk-donskaya-eademidova-sw-1(config-vlan)#name other
msk-donskaya-eademidova-sw-1(config-vlan)#show vlan
^
% Invalid input detected at '^' marker.

msk-donskaya-eademidova-sw-1(config-vlan)#^Z
msk-donskaya-eademidova-sw-1#
NDV5-S-CONFIG-I: Configured from console by console

msk-donskaya-eademidova-sw-1#show vlan

VLAN Name                Status    Ports
-----
1  default                  active    Fa0/2, Fa0/3, Fa0/4, Fa0/5
                                           Fa0/6, Fa0/7, Fa0/8, Fa0/9
                                           Fa0/10, Fa0/11, Fa0/12, Fa0/13
                                           Fa0/14, Fa0/15, Fa0/16, Fa0/17
                                           Fa0/18, Fa0/19, Fa0/20, Fa0/21
                                           Fa0/22, Fa0/23, Fa0/24
2  management               active
3  servers                  active
101 dh                      active
102 departaments           active
103 adm                     active
104 other                   active
1002 fddi.default           active
1003 token-ring-default     active
1004 fddinet.default        active
1005 trnet-default          active

VLAN Type SAID             MTU    Parent Ringno BridgeNo Stp    BrdMode Trans1 Trans2
-----
..More..
```

Рис. 6: Настройка VTP-сервера

Настройка VTP-клиентов

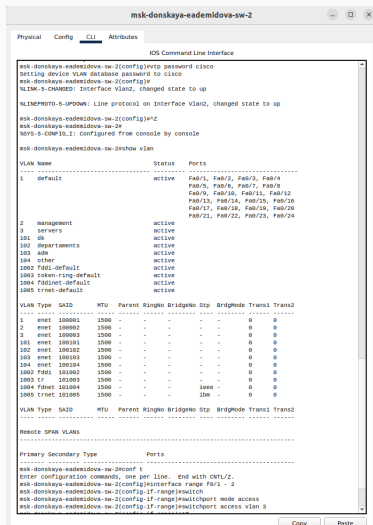


Рис. 7: Настройка VTP-клиентов

Настройка VTP-клиентов

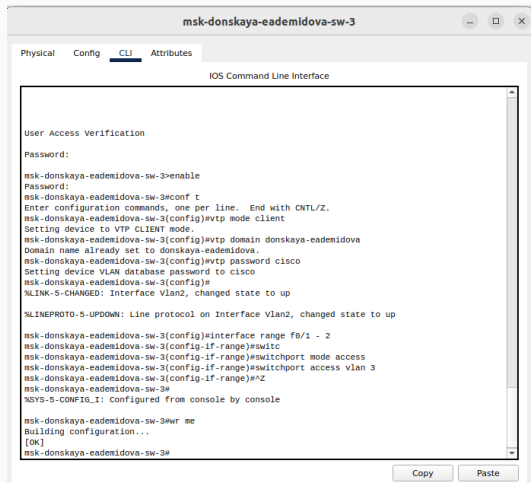


Рис. 8: Настройка VTP-клиентов

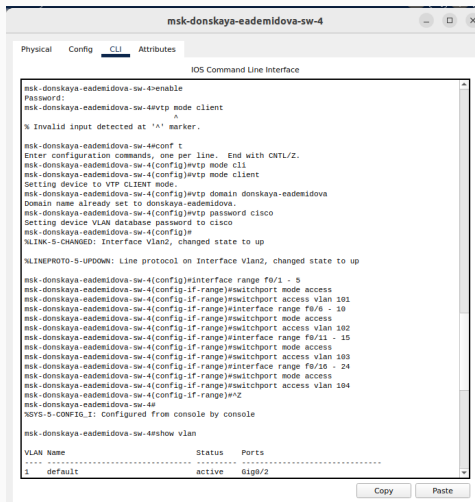


Рис. 9: Настройка VTP-клиентов

Настройка VTR-клиентов

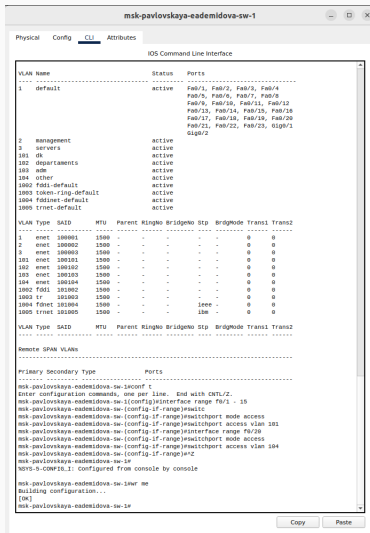
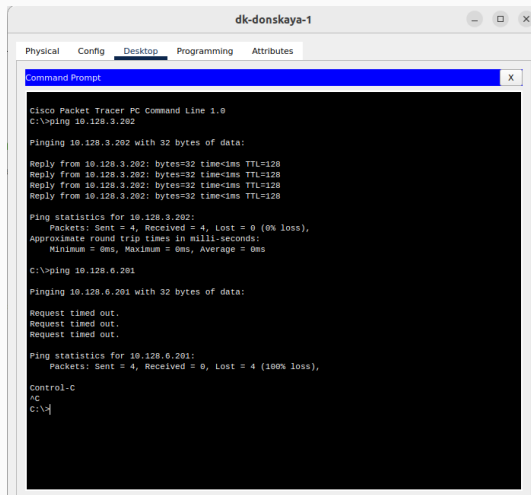


Рис. 10: Настройка VTP-клиентов

Проверка доступности устройств



The screenshot shows a window titled "dk-donskaya-1" with tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, displaying a "Command Prompt" window. The Command Prompt shows the output of two ping commands. The first command is "C:\>ping 10.128.3.202", which results in four successful replies from 10.128.3.202 with 32 bytes of data, a time of less than 1ms, and a TTL of 128. The ping statistics show 4 packets sent, 4 received, and 0% loss. The second command is "C:\>ping 10.128.6.201", which results in three request timeouts. The ping statistics show 4 packets sent, 0 received, and 100% loss. The Command Prompt also shows a "Control-C" signal and a caret (^C) character.

```
dk-donskaya-1
Physical Config Desktop Programming Attributes
Command Prompt X

Cisco Packet Tracer PC Command Line 1.0
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 10.128.6.201

Pinging 10.128.6.201 with 32 bytes of data:

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

Ping statistics for 10.128.6.201:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

Control-C
^C
C:\>
```

Рис. 11: Проверка доступности устройств с помощью команды ping

Проверка доступности устройств

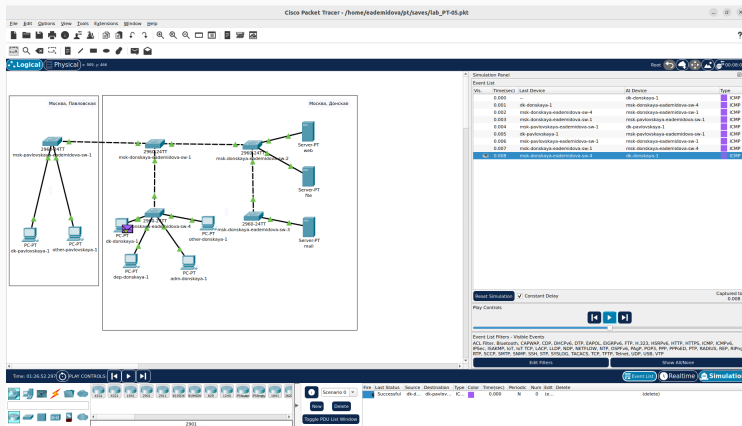


Рис. 12: Проверка доступности устройств в режиме симуляции

Проверка доступности устройств

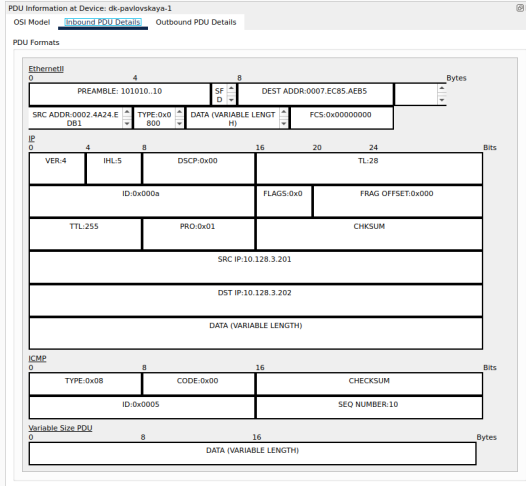


Рис. 13: Проверка доступности устройств в режиме симуляции

Проверка доступности устройств

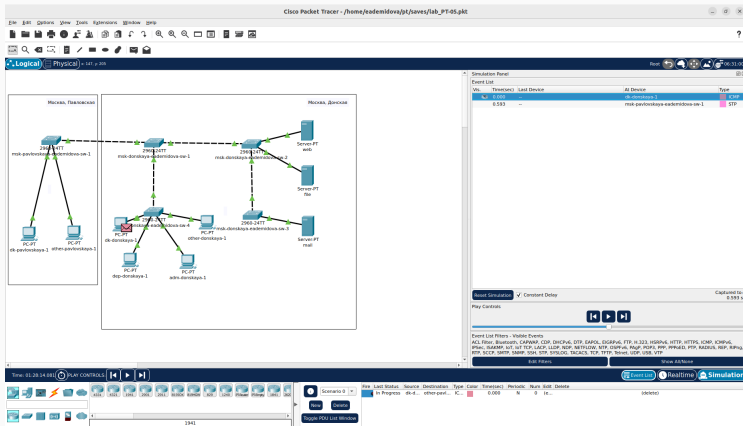


Рис. 14: Проверка доступности устройств в режиме симуляция

Проверка доступности устройств

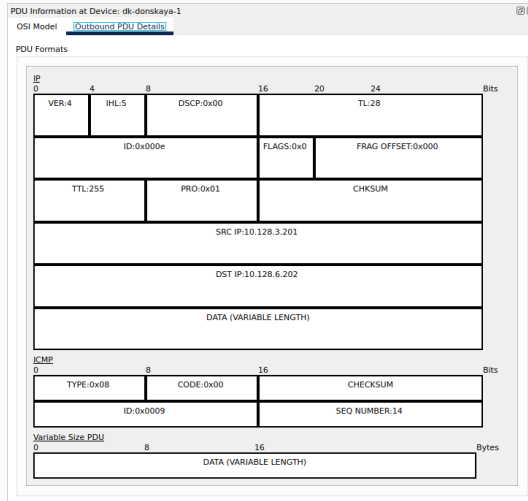


Рис. 15: Проверка доступности устройств в режиме симуляция

Выводы

В результате выполнения лабораторной работы получили основные навыки по настройке VLAN на коммутаторах сети.