Лабораторная работа № 5

Конфигурирование VLAN

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Получить основные навыки по настройке VLAN на коммутаторах сети.

- 1. На коммутаторах сети настроить Trunk-порты на соответствующих интерфейсах, связывающих коммутаторы между собой.
- 2. Коммутатор msk-donskaya-sw-1 настроить как VTP-сервер и прописать на нём номера и названия VLAN.
- 3. Коммутаторы msk-donskaya-sw-2 msk-donskaya-sw-4, mskpavlovskaya-sw-1 настроить как VTP-клиенты, на интерфейсах указать принадлежность к соответствующему VLAN.

- 4. На серверах прописать ІР-адреса.
- 5. На оконечных устройствах указать соответствующий адрес шлюза и прописать статические IP-адреса из диапазона соответствующей сети, следуя регламенту выделения ір-адресов.
- 6. Проверить доступность устройств, принадлежащих одному VLAN, и недоступность устройств, принадлежащих разным VLAN.
- 7. При выполнении работы необходимо учитывать соглашение об именовании.

```
User Access Verification

Password:

msk-donskaya-dishiyapova-sw-l>enable
password:

msk-donskaya-dishiyapova-sw-l$configure terminal
Enter configuration commands, one per line. End with CNTL/2.

msk-donskaya-dishiyapova-sw-l(config)#interface go/l

msk-donskaya-dishiyapova-sw-l(config-if)#switchport mode trunk

msk-donskaya-dishiyapova-sw-l(config-if)#switchport mode trunk

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

Рис. 1: Настройка Trunk-порта на msk-donskaya-dishiyapova-sw-1

```
Password:
msk-donskava-dishivapova-sw-2>enable
Password:
msk-donskava-dishivapova-sw-2#configure terminal
Enter configuration commands, one per line. End with CNTL/2.
msk-donskaya-dishiyapova-sw-2(config) #interface g0/1
msk-donskaya-dishiyapova-sw-2(config-if) #switchport mode trunk
msk-donskava-dishivapova-sw-2(config-if)#switchport trunk allowed vlan 2.3
msk-donskaya-dishiyapova-sw-2(config-if) #exit
msk-donskava-dishivapova-sw-2(config) #interface g0/2
msk-donskaya-dishiyapova-sw-2(config-if)#switchport mode trunk
msk-donskaya-dishiyapova-sw-2(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-donskava-dishivapova-sw-2(config-if) #switchport trunk allowed vlan 2.3
msk-donskava-dishivapova-sw-2(config-if) fexit
msk-donskava-dishivapova-sw-2 (config) #
```

Рис. 2: Настройка Trunk-порта на msk-donskaya-dishiyapova-sw-2

```
User Access Verification
Password:
mak-donakaya-dishiyapoya-aw-3>
%LINEFROTO-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-dishiyapova-sw-3>enable
Password:
msk-donskava-dishivapova-sw-3#configure termainal
% Invalid input detected at '"' marker.
msk-donskaya-dishiyapova-sw-3fconfigure terminal
Enter configuration commands, one per line. End with CNTL/2.
msk-donskava-dishivapova-sw-3(config)#interface g0/1
msk-donskaya-dishiyapova-sw-3(config-if)#switchport mode trunk
mak-donakaya-dishiyapoya-sw-3(config-if) #switchport trunk allowed ylan 2.3
msk-donskaya-dishiyapoya-sw-3(config-if) #exit
msk-donskaya-dishiyapova-sw-3(config)#exit
mak-donakaya-dishiyapoya-sw-3#
&SYS-5-CONFIG I: Configured from console by console
configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-dishiyapoya-sw-3(config) #exit
mak-donskava-dishiyapoya-sw-3[
%SYS-5-CONFIG I: Configured from console by console
```

Рис. 3: Настройка Trunk-порта на msk-donskaya-dishiyapova-sw-3

```
Password:
msk-donskava-dishivapova-sw-4>enable
Pagaword:
msk-donskaya-dishiyapova-sw-4#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-dishiyapova-sw-1(config) #interface g0/1
msk-donskava-dishivapova-sw-4(config-if) #switchport mode trunk
msk-donskaya-dishiyapova-sw-4(config-if)#switchport trunk 2, 101, 102, 103, 104
% Invalid input detected at '^' marker.
msk-donskaya-dishiyapova-sw-4(config-if) #switchport trunk 2,101,102,103,104
% Invalid input detected at '^' marker.
msk-donskava-dishivapova-sw-4(config-if)#switchport trunk allowed vlan 2.101.102.103.104
msk-donskava-dishivapova-sw-4(config-if)#
```

Рис. 4: Настройка Trunk-порта на msk-donskaya-dishiyapova-sw-4

```
Passengerd:
msk-paylovskava-dishivapova-sw-1>cnable
Pagemonds.
msk-paylovskava-dishivapova-sw-l#interface f0/24
% Invalid input detected at '^' marker.
msk-pavlovskava-dishivapova-sw-l#switchport mode trunk
% Invalid input detected at '^' marker.
msk-pavlovskaya-dishiyapova-sw-l#enable
msk-paylovskava-dishivapova-sw-l@configure terminal
Enter configuration commands, one per line. End with CMTL/Z.
msk-paylovskava-dishivapova-sw-1(config) #interface f0/24
msk-paylovskava-dishivapova-sw-1(config-if) switchport mode trunk
msk-paylovskava-dishivapova-sw-l(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed state to down
ALINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed state to up
msk-paylovskaya-dishiyapova-sw-1(config-if) #switchport trunk allowed vlan 2,101,104
msk-paylovskava-dishivapova-sw-l(config-if) #exit
msk-paylovskaya-dishiyapoya-sw-1(config) |exit
msk-pavlovskaya-dishiyapova-sw-1#
ASYS-5-CONFIG I: Configured from console by console
```

Рис. 5: Настройка Trunk-порта на msk-pavlovskaya-dishiyapova-sw-1

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan2, changed state to up
msk-donskaya-dishiyapova-sw-F(config-vlan) #vlan 2
msk-donskava-dishivapova-sw-1(config-vlan) *name management
msk-donskava-dishivapova-sw-1(config-vlan)#vlan 3
msk-donskava-dishivapova-sw-1(config-vlan) #name servers
msk-donskava-dishivapova-sw-1(config-vlan)#vlan 101
msk-donskaya-dishiyapova-sw-1(config-vlan) #name dk
msk-donskava-dishivapova-sw-1(config-vlan)#vlan 102
msk-donskaya-dishiyapova-sw-1(config-vlan) #name departaments
msk-donskaya-dishiyapova-sw-1(config-vlan) #vlan 103
msk-donskaya-dishiyapova-sw-1(config-vlan)#vlan
% Invalid input detected at '^' marker.
msk-donskaya-dishiyapova-sw-1(config-vlan) #name adm
msk-donskava-dishivapova-sw-1(config-vlan)#vlan 104
msk-donskava-dishivapova-sw-l(config-vlan) frame other
msk-donskava-dishivapova-sw-1(config-vlan) #
msk-donskava-dishivapova-sw-1(config-vlan) #exit
msk-donskava-dishivapova-sw-1 (confid) fexit
```

Рис. 6: Задания VLAN

```
msk-donskaya-dishiyapova-sw-1>enable
Pagggard:
msk-donskava-dishivanova-sw-liconfigure terminal
Enter configuration commands, one per line. End with CNTL/Z.
mak-donakaya-dishiyapoya-sw-1(config) #vtp mode server
Device mode already VTP SERVER.
msk-donskava-dishivapova-sw-1(config)[vtp domain donskava
Changing VTP domain name from NULL to donakaya
msk-donskava-dishivapova-sw-1(confid)#vtp password cisco
Setting device VLAN database password to cisco
msk-donskaya-dishiyapova-sw-1(config) #vlan 2
msk-donskava-dishivapova-sw-1(config-vlan)#
%LINK-S-CHANGED: Interface Vlan2, changed state to up
%LINEPROTO-S-UPDOWN: Line protocol on Interface Vlan2, changed state to up
mak-donakaya-diahiyanoya-aw-1(config-ylan)#ylan 2
msk-donskaya-dishiyapova-sw-1(config-vlan) #name management
msk-donskava-dishivapova-sw-1 (config-vlan) [vlan 3
mak-donakaya-dishiyanova-sw-1 (config-vlan) #name servers
msk-donskava-dishivapova-sw-1(config-vlan) #vlan 101
msk-donskaya-dishiyapova-sw-1(config-vlan) | name dk
mak-donakaya-diahiyanoya-aw-1(config-ylan)#ylan 102
msk-donskava-dishivapova-sw-1(config-vlan) #name departaments
msk-donskaya-dishiyapova-sw-1(config-vlan) #vlan 103
mak-donakaya-dishiyanoya-sw-1 (config-ylan) #vlan
& Invalid input detected at '^' marker.
msk-donskava-dishivapova-sw-l(config-vlan) #name adm
msk-donskaya-dishiyapova-sw-1 (config-vlan) #vlan 104
mak-donakaya-diahiyanoya-aw-1(config-vlan) #name other
msk-donskava-dishivapova-sw-1(config-vlan)#
msk-donskava-dishivapova-sw-1(config-vlan) fexit
mak-donakaya-diahiyanoya-aw-1/config) fexit
msk-donskava-dishivapova-sw-l#
%SYS-5-CONFIG I: Configured from console by console
```

msk-donskava-dishiyanova-sw-lf

```
msx-donskaya-dishiyapova-sw-2#conliquire terminal
Enter configuration commands, one per line. End with CNTL/Z.
msx-donskaya-dishiyapova-sw-2(config) #vtp mode client
Setting device to VTP CLIENT mode.
msk-donskaya-dishiyapova-sw-2(config) #vtp domain donskaya
Domain name already set to donskaya.
msx-donskaya-dishiyapova-sw-2(config) #vtp password cisco
Setting device VLAN database password to disco
msk-donskaya-dishiyapova-sw-2(config) #
&LINK-5-CHANGED: Interface Vlan2, changed state to up
%LINE-5-DPDOWN: Line protocol on Interface Vlan2, changed state to up
```

Рис. 8: Конфигурация VTP msk-donskaya-dishiyapova-sw-2

```
msk-donskaya-dishiyapowa-sw-3fconfigure terminal
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-dishiyapowa-sw-3fconfig)fvtp mode client
Setting device to VTP CLIENT mode.
msk-donskaya-dishiyapowa-sw-3fconfig)fvtp demain donskaya
Domain name already set to donskaya.
msk-donskaya-dishiyapowa-sw-3fconfig)fvtp password cisco
Setting device VLAN database password to cisco
msk-donskaya-dishiyapowa-sw-3fconfig)fvtp
msk-donskaya-dishiyapowa-sw-3fconfig)fvtp
```

Рис. 9: Конфигурация VTP msk-donskaya-dishiyapova-sw-3

```
msk-donskaya-dishiyapova-sw-4>enable
Password:
msk-donskaya-dishiyapova-sw-4‡configure terminal
Enter configuration commands, one per line. End with CNTL/2.
msk-donskaya-dishiyapova-sw-4(config) #vtp mode client
Setting device to VTP CLIENT mode.

msk-donskaya-dishiyapova-sw-4(config) #vtp domain donskaya
Domain name already set to donakaya.
msk-donskaya-dishiyapova-sw-4(config) #vtp password cisco
Setting device VLAN database password to cisco
msk-donskaya-dishiyapova-sw-44(config) #exit
msk-donskaya-dishiyapova-sw-4#
%SYS-5-CONFIG I: Configured from console by console
msk-donskaya-dishiyapova-sw-4#
```

Рис. 10: Конфигурация VTP msk-donskaya-dishiyapova-sw-4

```
Password:
msk-donskaya-dishiyapova-sw-l‡configure terminal
Enter configuration commands, one per line. End with CNTL/2.
msk-donskaya-dishiyapova-sw-l(config) #vtp mode server
Device mode already VTP SERVER.
msk-donskaya-dishiyapova-sw-l(config) #vtp domain donskaya
Changing VTP domain name from NULL to donskaya
msk-donskaya-dishiyapova-sw-l(config) #vtp password disco
Setting device VLAN database password to cisco
msk-donskaya-dishiyapova-sw-l(config) #vlan 2
msk-donskaya-dishiyapova-sw-l(config-vlan) #
%LINK-5-CHANGED: Interface Vlan2, changed state to up
```

Рис. 11: Конфигурация VTP msk-pavlovskaya-dishiyapova-sw-1

```
msk-donskava-dishivapova-sw-4#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskava-dishivanova-sw-4(config) finterface range f0/1-5
msk-donskava-dishivapova-sw-4(config-if-range) #switchport mode access
msk-donskava-dishivapova-sw-4(config-if-range) #switchport access vlan 101
msk-donskava-dishivapova-sw-4(config-if-range)#interface range f0/6-10
msk-donskava-dishivapova-sw-4(config-if-range) #switchport access vlan 101
msk-donskava-dishivapova-sw-4(config-if-range) [exit
msk-donskaya-dishiyapova-sw-4(config) finterface range f0/1-5
msk-donskava-dishivapova-sw-4(config-if-range) #switchport mode access
msk-donskaya-dishiyapova-sw-4(config-if-range) switchport access vlan 101
msk-donskava-dishivapova-sw-4(config-if-range) #exit
msk-donskava-dishivapova-sw-4(config) #interface range f0/6-10
msk-donskava-dishivapova-sw-4(config-if-range) [switchport mode access
msk-donskava-dishivapova-sw-4(config-if-range)#switchport access vlan 102
msk-donskava-dishivapova-sw-4(config-if-range) #exit
msk-donskava-dishivapova-sw-4(config) #interface range f0/11-15
msk-donskava-dishiyapova-sw-4(config-if-range) #switchport mode access
msk-donskava-dishivapova-sw-4(config-if-range) #switchport access vlan 103
msk-donskava-dishivapova-sw-4(config-if-range) fexit
msk-donskaya-dishiyapova-sw-4(config) #interface range f0/16-24
msk-donskava-dishivapova-sw-4(config-if-range) #switchport mode access
msk-donskava-dishivapova-sw-4/config-if-range)#switchport access vlan 104
msk-donskava-dishivapova-sw-4(config-if-range) #exit
msk-donskava-dishivapova-sw-4(config) fexit
msk-donskava-dishivapova-sw-41
%SYS-5-CONFIG I: Configured from console by console
```

```
msk-donskava-dishivapova-sw-l#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-dishiyapova-sw-1(config)#inrerface f0/24
* Invalid input detected at ''' marker.
msk-donskava-dishivapova-sw-1(config)finterface f0/24
msk-donskaya-dishiyapova-sw-1(config-if)#s
%CDF-4-NATIVE VLAN MISMATCH: Native VLAN mismatch discovered on FastEthernetO/1 (101), with msk-
paylovskava-dishivapova-sw-1 FastEthernet0/24 (1).
msk-donskava-dishivapova-sw-1 (config-if) #
msk-donskava-dishivapova-sw-1(config-if)#interface f0/24
msk-donskaya-dishiyapova-sw-l(config-if)#switchport mode trunk
msk-donskaya-dishiyapova-sw-1(config-if) #switchport trunk allowed vlan 2, 3, 101, 102, 103, 104
% Invalid input detected at '^' marker.
msk-donskava-dishivapova-sw-l(config-if)#
RCDP-4-NATIVE VLAN MISMATCH: Native VLAN mismatch discovered on FastEthernetO/1 (101), with msk-
pavlovskaya-dishiyapova-sw-1 FastEthernet0/24 (1). I
msk-donskava-dishivapova-sw-1(config-if) #switchport trunk allowed vlan 2, 3, 101, 102, 103, 104
```

Рис. 13: Конфигурация диапазона портов и указание принадлежности к VLAN для msk-pavlovskaya-dishiyapova-sw-1

```
msk-donskava-dishivapova-sw-2>enable
Paggword:
msk-donskava-dishivapova-sw-2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskava-dishivapova-sw-2(config) #interface g0/1
msk-donskava-dishivapova-sw-2(config-if) #switchport mode trunk
msk-donskaya-dishiyapova-sw-2(config-if)#switchport trunk allowed vlan 2,3
mak-donakaya-dishiyapoya-sw-2(config-if) #exit
msk-donskaya-dishiyapova-sw-2(config) #interface g0/2
msk-donskava-dishivapova-sw-2(config-if) [switchport mode trunk
msk-donskaya-dishiyapova-sw-2(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-donskava-dishivapova-sw-2(config-if) #switchport trunk allowed vlan 2.3
msk-donskava-dishivapova-sw-2(config-if) #exit
msk-donskava-dishivapova-sw-2(config) #exit
msk-donskaya-dishiyapova-sw-2#
ASYS-5-CONFIG I: Configured from console by console
exit
```

Рис. 14: Конфигурация диапазона портов и указание принадлежности к VLAN для msk-donskaya-dishiyapova-sw-2

```
b Invalid input detected at '^' marker.

msk-donskaya-dishiyapova-sw-3fconfigure terminal
Enter configuration commands, one per line. End with CNTL/Z.

msk-donskaya-dishiyapova-sw-3(config-if)#switchport mode trunk

msk-donskaya-dishiyapova-sw-3(config-if)#switchport trunk allowed vlan 2,3

msk-donskaya-dishiyapova-sw-3(config-if)#switchport trunk allowed vlan 2,3

msk-donskaya-dishiyapova-sw-3(config-if)#exit

msk-donskaya-dishiyapova-sw-3(config-if)#exit

msk-donskaya-dishiyapova-sw-3f

syys-5-CONFIG_I: Configured from console by console

configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

msk-donskaya-dishiyapova-sw-3(config)#exit

msk-donskaya-dishiyapova-sw-3(config)#exit

msk-donskaya-dishiyapova-sw-3(config)#exit

msk-donskaya-dishiyapova-sw-3(config)#exit

msk-donskaya-dishiyapova-sw-3(config)#exit
```

Рис. 15: Конфигурация диапазона портов и указание принадлежности к VLAN для msk-donskaya-dishiyapova-sw-3

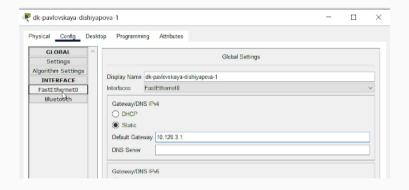


Рис. 16: Задание ІР-адреса шлюзу

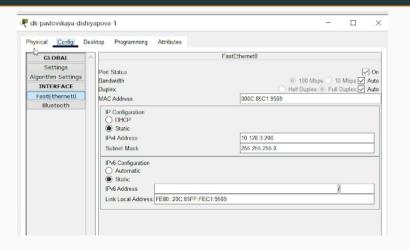


Рис. 17: Задание ІР-адреса

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.128.3.201
Pinging 10.128.3.201 with 32 bytes of data:
Reply from 10.128.3.201: bytes=32 time<1ms TTL=128
Reply from 10.128.3.201: bytes=32 time<lms TTL=128
Reply from 10.128.3.201; bytes=32 time<lms TTL=128
Reply from 10.128.3.201: bytes=32 time<1ms TTL=128
Ping statistics for 10.128.3.201:
    Packets: Sent = 4. Received = 4. Lost = 0 (0% loss).
Approximate round trip times in milli-seconds:
    Minimum = Oms, Maximum = Oms, Average = Oms
C:\>ping 10.128.4.200
Pinging 10.128.4.200 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 10.128.4.200:
    Packets: Sent = 4. Received = 0. Lost = 4 (100% loss).
C:\>ping 10.128.0.3
Pinging 10,128,0,3 with 32 bytes of data:
```

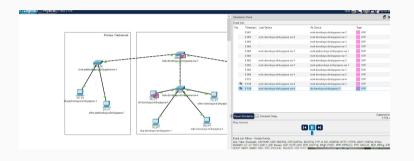


Рис. 19: Режим симуляции



В процессе выполнения данной лабораторной работы я получила основные навыки по настройке VLAN на коммутаторах сети.