

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 IP-адреса.

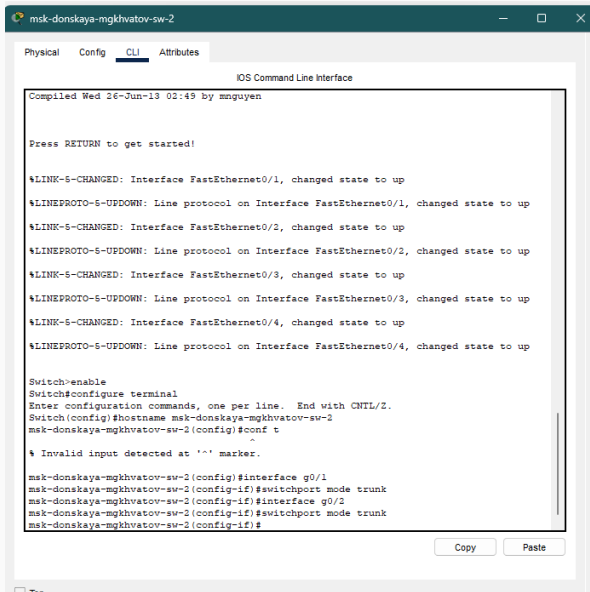
5. На оконечных устройствах указать соответствующий адрес шлюза и прописать статические IP-адреса из диапазона соответствующей сети, следуя регламенту выделения ip-адресов.
6. Проверить доступность устройств, принадлежащих одному VLAN, и недоступность устройств, принадлежащих разным VLAN.
7. При выполнении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

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

msk-donskaya-mgkhvatov-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
|
```

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

Выполнение лабораторной работы



The screenshot shows a web-based interface for a network switch. At the top, there are tabs for 'Physical', 'Config', 'CLI', and 'Attributes'. The 'CLI' tab is selected. Below the tabs, the title 'IOS Command Line Interface' is displayed. The main area contains a terminal window with the following text:

```
Compiled Wed 26-Jun-13 02:49 by mnguyen

Press RETURN to get started!

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed state to up

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msk-donskaya-mgkhvatov-sw-2
msk-donskaya-mgkhvatov-sw-2(config)#conf t
^
% Invalid input detected at '^' marker.

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

At the bottom right of the terminal window, there are 'Copy' and 'Paste' buttons. At the bottom left, there is a 'Top' button.


```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname msk-donskaya-mgkhvatov-sw-3
msk-donskaya-mgkhvatov-sw-3(config)#interface g0/1
msk-donskaya-mgkhvatov-sw-3(config-if)#switchport mode trunk
msk-donskaya-mgkhvatov-sw-3(config-if)#
```

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

```
msk-donskaya-mgkhvatov-sw-4>en
msk-donskaya-mgkhvatov-sw-4#configure t
Enter configuration commands, one per line.  End with CNTL/Z.
msk-donskaya-mgkhvatov-sw-4(config)#interface g0/1
msk-donskaya-mgkhvatov-sw-4(config-if)#switchport mode trunk
msk-donskaya-mgkhvatov-sw-4(config-if)#
```

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

```
msk-pavlovskaya-mgkhvatov-sw-1>enable
msk-pavlovskaya-mgkhvatov-sw-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
msk-pavlovskaya-mgkhvatov-sw-1(config)#interface f0/24
msk-pavlovskaya-mgkhvatov-sw-1(config-if)#switchport mode trunk
msk-pavlovskaya-mgkhvatov-sw-1(config-if)#
```

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

```
msk-donskaya-mgkhvatov-sw-1(config-if)#vlan 2
msk-donskaya-mgkhvatov-sw-1(config-vlan)#
%LINK-5-CHANGED: Interface Vlan2, changed state to up

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

msk-donskaya-mgkhvatov-sw-1(config-vlan)#name management
      ^
% Invalid input detected at '^' marker.

msk-donskaya-mgkhvatov-sw-1(config-vlan)#name management
msk-donskaya-mgkhvatov-sw-1(config-vlan)#vlan 3
msk-donskaya-mgkhvatov-sw-1(config-vlan)#name servers
msk-donskaya-mgkhvatov-sw-1(config-vlan)#vlan 101
msk-donskaya-mgkhvatov-sw-1(config-vlan)#name dk
msk-donskaya-mgkhvatov-sw-1(config-vlan)#vlan 102
msk-donskaya-mgkhvatov-sw-1(config-vlan)#name departments
msk-donskaya-mgkhvatov-sw-1(config-vlan)#vlan 103
msk-donskaya-mgkhvatov-sw-1(config-vlan)#name adm
msk-donskaya-mgkhvatov-sw-1(config-vlan)#vlan 104
msk-donskaya-mgkhvatov-sw-1(config-vlan)#name other
msk-donskaya-mgkhvatov-sw-1(config-vlan)#^Z
msk-donskaya-mgkhvatov-sw-1#
%SYS-5-CONFIG_I: Configured from console by console
```

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

msk-donskaya-mgkhvatov-sw-1#sh 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, Gig0/1
                                           Gig0/2
2    management              active
3    servers                  active
101  dk                        active
102  departments               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    BrgdMode Transl Trans2
--
..
```

Рис. 7: Команда show vlan

```
sk-donskaya-mgkhvatov-sw-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
sk-donskaya-mgkhvatov-sw-1(config)#vtp domain donsкаya
Changing VTP domain name from NULL to donsкаya
sk-donskaya-mgkhvatov-sw-1(config)#vtp mode server
Device mode already VTP SERVER.
sk-donskaya-mgkhvatov-sw-1(config)#vtp password cisco
Setting device VLAN database password to cisco
sk-donskaya-mgkhvatov-sw-1(config)#
```

Рис. 8: Конфигурация VTP msk-donskaya-mgkhvatov-sw-1

```
msk-donskaya-mgkhvatov-sw-2(config-if)#vtp domain donsкаya
Domain name already set to donsкаya.
msk-donskaya-mgkhvatov-sw-2(config)#vtp mode client
Setting device to VTP CLIENT mode.
msk-donskaya-mgkhvatov-sw-2(config)#
msk-donskaya-mgkhvatov-sw-2(config)#vtp password cisco
Setting device VLAN database password to cisco
msk-donskaya-mgkhvatov-sw-2(config)#
```

Рис. 9: Конфигурация VTP msk-donskaya-mgkhvatov-sw-2

```
msk-donskaya-mgkhvatov-sw-3(config-if)#vtp mode client
Setting device to VTP CLIENT mode.
msk-donskaya-mgkhvatov-sw-3(config)#vtp password cisco
%The VTP password cannot be set for NULL domain
msk-donskaya-mgkhvatov-sw-3(config)#vtp dmain donsкаya
      ^
% Invalid input detected at '^' marker.

msk-donskaya-mgkhvatov-sw-3(config)#vtp domain donsкаya
Changing VTP domain name from NULL to donsкаya
msk-donskaya-mgkhvatov-sw-3(config)#vtp password cisco
Setting device VLAN database password to cisco
msk-donskaya-mgkhvatov-sw-3(config)#
```

Рис. 10: Конфигурация VTP msk-donskaya-mgkhvatov-sw-3


```
msk-donskaya-mgkhvatov-sw-4(config-if)#vtp mode client
Setting device to VTP CLIENT mode.
msk-donskaya-mgkhvatov-sw-4(config)#vtp password cissco
%The VTP password cannot be set for NULL domain
msk-donskaya-mgkhvatov-sw-4(config)#vtp password cisco
%The VTP password cannot be set for NULL domain
msk-donskaya-mgkhvatov-sw-4(config)#vtp domain dontskaya
Changing VTP domain name from NULL to dontskaya
msk-donskaya-mgkhvatov-sw-4(config)#vtp password cisco
Setting device VLAN database password to cisco
msk-donskaya-mgkhvatov-sw-4(config)#
```

Рис. 11: Конфигурация VTP msk-donskaya-mgkhvatov-sw-4

```
^Z
msk-donskaya-mgkhvatov-sw-4#sh vtp status
VTP Version capable      : 1 to 2
VTP version running      : 1
VTP Domain Name          : donsкаya
VTP Pruning Mode         : Disabled
VTP Traps Generation     : Disabled
Device ID                : 000C.CFA6.0A00
Configuration last modified by 0.0.0.0 at 0-0-00 00:00:00

Feature VLAN :
-----
VTP Operating Mode       : Client
Maximum VLANs supported locally : 255
Number of existing VLANs : 5
Configuration Revision    : 0
MD5 digest               : 0x95 0xDF 0x97 0x83 0x56 0x40 0x67 0x34
                        : 0x73 0x18 0x5F 0x2E 0xA8 0x76 0xEB 0x67

msk-donskaya-mgkhvatov-sw-4#
```

Рис. 12: vtp status

Выполнение лабораторной работы

```
msk-donskaya-mgkhvatov-sw-4#sh vlan
```

VLAN	Name	Status	Ports
1	default	active	Fa0/1, 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 Gig0/1, Gig0/2
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	BrdgMode	Trans1	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0
1002	fddi	101002	1500	-	-	-	-	-	0	0
1003	tr	101003	1500	-	-	-	-	-	0	0
1004	fdnet	101004	1500	-	-	-	ieee	-	0	0
1005	trnet	101005	1500	-	-	-	ibm	-	0	0

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
------	------	------	-----	--------	--------	----------	-----	----------	--------	--------


```
Remote SPAN VLANs
```


Primary	Secondary	Type	Ports
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Рис. 13: Проверка отображения VLAN

Выполнение лабораторной работы

```
Setting device to VTP CLIENT mode.
msk-pavlovskaya-mgkhvatov-sw-1(config)#vtp password cisco
%The VTP password cannot be set for NULL domain
msk-pavlovskaya-mgkhvatov-sw-1(config)#vtp domain pavlovskaya
Changing VTP domain name from NULL to pavlovskaya
msk-pavlovskaya-mgkhvatov-sw-1(config)#vtp password cisco
Setting device VLAN database password to cisco
msk-pavlovskaya-mgkhvatov-sw-1(config)#00:25:30 %DTP-5-DOMAINMISMATCH: Unable to perform
trunk negotiation on port Fa0/1 because of VTP domain mismatch.

msk-pavlovskaya-mgkhvatov-sw-1(config)#00:26:00 %DTP-5-DOMAINMISMATCH: Unable to perform
trunk negotiation on port Fa0/1 because of VTP domain mismatch.

msk-pavlovskaya-mgkhvatov-sw-1(config)#00:26:30 %DTP-5-DOMAINMISMATCH: Unable to perform
trunk negotiation on port Fa0/1 because of VTP domain mismatch.

msk-pavlovskaya-mgkhvatov-sw-1(config)#vtp password cisco00:27:00 %DTP-5-DOMAINMISMATCH:
Unable to perform trunk negotiation on port Fa0/1 because of VTP domain mismatch.

Password already set to cisco
msk-pavlovskaya-mgkhvatov-sw-1(config)#interface f0/24
msk-pavlovskaya-mgkhvatov-sw-1(config-if)#switchport 00:27:30 %DTP-5-DOMAINMISMATCH:
Unable to perform trunk negotiation on port Fa0/1 because of VTP domain mismatch.

% Incomplete command.
msk-pavlovskaya-mgkhvatov-sw-1(config-if)#switchport mode trunk
msk-pavlovskaya-mgkhvatov-sw-1(config-if)#vtp password cisco
Password already set to cisco
msk-pavlovskaya-mgkhvatov-sw-1(config)#switchport00:28:00 %DTP-5-DOMAINMISMATCH: Unable
to perform trunk negotiation on port Fa0/1 because of VTP domain mismatch.
```

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