

Первоначальное конфигурирование сети

Лабораторная работа № 4

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Познакомится с принципами планирования локальной сети организации

Выполнение лабораторной работы

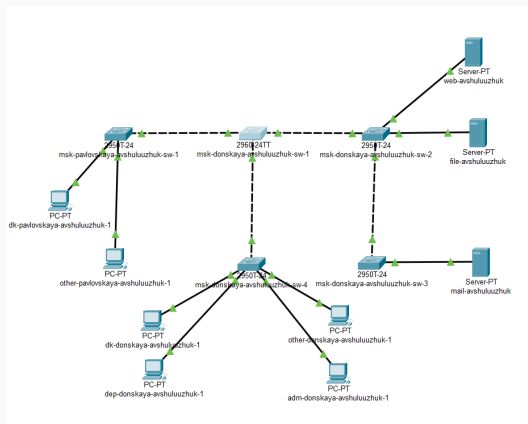
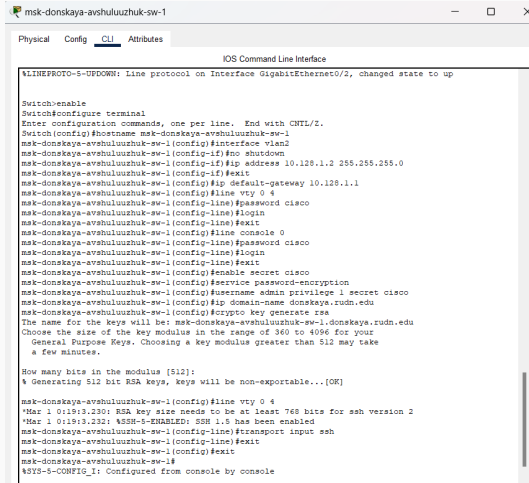


Рис. 1: Размещение коммутаторов и оконечных устройств согласно схеме сети L1

Выполнение лабораторной работы



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

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to up

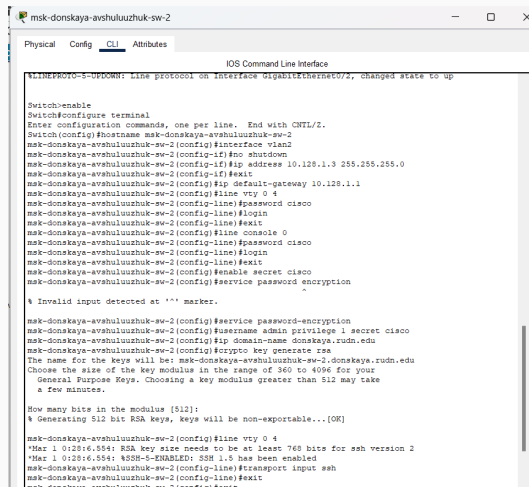
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msk-donskaya-avshuluuzhuk-sw-1
msk-donskaya-avshuluuzhuk-sw-1(config)#interface vlan2
msk-donskaya-avshuluuzhuk-sw-1(config-if)#no shutdown
msk-donskaya-avshuluuzhuk-sw-1(config-if)#ip address 10.128.1.2 255.255.255.0
msk-donskaya-avshuluuzhuk-sw-1(config-if)#exit
msk-donskaya-avshuluuzhuk-sw-1(config)#ip default-gateway 10.128.1.1
msk-donskaya-avshuluuzhuk-sw-1(config)#line vty 0 4
msk-donskaya-avshuluuzhuk-sw-1(config-line)#password cisco
msk-donskaya-avshuluuzhuk-sw-1(config-line)#login
msk-donskaya-avshuluuzhuk-sw-1(config-line)#exit
msk-donskaya-avshuluuzhuk-sw-1(config)#line console 0
msk-donskaya-avshuluuzhuk-sw-1(config-line)#password cisco
msk-donskaya-avshuluuzhuk-sw-1(config-line)#login
msk-donskaya-avshuluuzhuk-sw-1(config-line)#exit
msk-donskaya-avshuluuzhuk-sw-1(config)#enable secret cisco
msk-donskaya-avshuluuzhuk-sw-1(config)#service password-encryption
msk-donskaya-avshuluuzhuk-sw-1(config)#username admin privilege 1 secret cisco
msk-donskaya-avshuluuzhuk-sw-1(config)#ip domain-name donskeya.rudn.edu
msk-donskaya-avshuluuzhuk-sw-1(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-avshuluuzhuk-sw-1.donskeya.rudn.edu
Choose the size of the key modulus in the range of 360 to 4096 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

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

msk-donskaya-avshuluuzhuk-sw-1(config)#line vty 0 4
*Mar 1 0:19:3.230: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:19:3.232: %SSH-5-ENABLED: SSH 1.5 has been enabled
msk-donskaya-avshuluuzhuk-sw-1(config-line)#transport input ssh
msk-donskaya-avshuluuzhuk-sw-1(config-line)#exit
msk-donskaya-avshuluuzhuk-sw-1(config)#exit
msk-donskaya-avshuluuzhuk-sw-1#
%SYS-5-CONFIG-I: Configured from console by console
```

Рис. 2: Последовательность команд по первоначальной настройке коммутатора msk-donskaya-sw-1

Выполнение лабораторной работы



```
msk-donskaya-avshuluuzhuk-sw-2
Physical Config CLI Attributes
IOS Command Line Interface
LINEPROTO-5-UPDOWN: Line protocol on interface GigabitEthernet0/24, changed state to up

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msk-donskaya-avshuluuzhuk-sw-2
msk-donskaya-avshuluuzhuk-sw-2(config)#interface vlan2
msk-donskaya-avshuluuzhuk-sw-2(config-if)#no shutdown
msk-donskaya-avshuluuzhuk-sw-2(config-if)#ip address 10.128.1.3 255.255.255.0
msk-donskaya-avshuluuzhuk-sw-2(config-if)#exit
msk-donskaya-avshuluuzhuk-sw-2(config)#ip default-gateway 10.128.1.1
msk-donskaya-avshuluuzhuk-sw-2(config)#line vty 0 4
msk-donskaya-avshuluuzhuk-sw-2(config-line)#password cisco
msk-donskaya-avshuluuzhuk-sw-2(config-line)#login
msk-donskaya-avshuluuzhuk-sw-2(config-line)#exit
msk-donskaya-avshuluuzhuk-sw-2(config)#line console 0
msk-donskaya-avshuluuzhuk-sw-2(config-line)#password cisco
msk-donskaya-avshuluuzhuk-sw-2(config-line)#login
msk-donskaya-avshuluuzhuk-sw-2(config-line)#exit
msk-donskaya-avshuluuzhuk-sw-2(config)#enable secret cisco
msk-donskaya-avshuluuzhuk-sw-2(config)#service password encryption
^
% Invalid input detected at '^' marker.

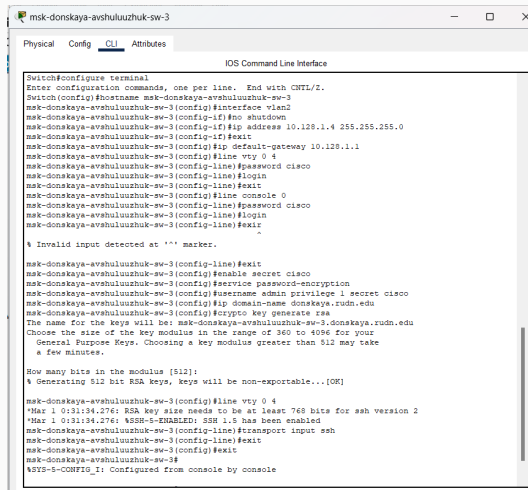
msk-donskaya-avshuluuzhuk-sw-2(config)#service password-encryption
msk-donskaya-avshuluuzhuk-sw-2(config)#username admin privilege 1 secret cisco
msk-donskaya-avshuluuzhuk-sw-2(config)#ip domain-name donsкаya.rudn.edu
msk-donskaya-avshuluuzhuk-sw-2(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-avshuluuzhuk-sw-2.donsкаya.rudn.edu
Choose the size of the key modulus in the range of 360 to 4096 for your
  General Purpose Keys. Choosing a key modulus greater than 512 may take
  a few minutes.

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

msk-donskaya-avshuluuzhuk-sw-2(config)#line vty 0 4
*Mar 1 0:28:6.554: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:28:6.554: %SSH-5-ENABLED: SSH 1.5 has been enabled
msk-donskaya-avshuluuzhuk-sw-2(config-line)#transport input ssh
msk-donskaya-avshuluuzhuk-sw-2(config-line)#exit
msk-donskaya-avshuluuzhuk-sw-2(config)#end
msk-donskaya-avshuluuzhuk-sw-2#
```

Рис. 3: Последовательность команд по первоначальной настройке коммутатора msk-donskaya-sw-2

Выполнение лабораторной работы



```
msk-donskaya-avshuluuzhuk-sw-3
Physical Config CLI Attributes
IOS Command Line Interface

Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msk-donskaya-avshuluuzhuk-sw-3
msk-donskaya-avshuluuzhuk-sw-3(config)#interface vlan2
msk-donskaya-avshuluuzhuk-sw-3(config-if)#no shutdown
msk-donskaya-avshuluuzhuk-sw-3(config-if)#ip address 10.128.1.4 255.255.255.0
msk-donskaya-avshuluuzhuk-sw-3(config-if)#exit
msk-donskaya-avshuluuzhuk-sw-3(config)#ip default-gateway 10.128.1.1
msk-donskaya-avshuluuzhuk-sw-3(config)#line vty 0 4
msk-donskaya-avshuluuzhuk-sw-3(config-line)#password cisco
msk-donskaya-avshuluuzhuk-sw-3(config-line)#login
msk-donskaya-avshuluuzhuk-sw-3(config-line)#exit
msk-donskaya-avshuluuzhuk-sw-3(config)#line console 0
msk-donskaya-avshuluuzhuk-sw-3(config-line)#password cisco
msk-donskaya-avshuluuzhuk-sw-3(config-line)#login
msk-donskaya-avshuluuzhuk-sw-3(config-line)#exit

% Invalid input detected at '^' marker.

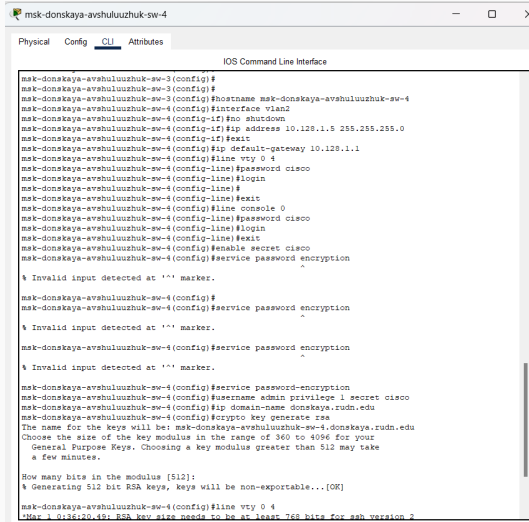
msk-donskaya-avshuluuzhuk-sw-3(config-line)#exit
msk-donskaya-avshuluuzhuk-sw-3(config)#enable secret cisco
msk-donskaya-avshuluuzhuk-sw-3(config)#service password-encryption
msk-donskaya-avshuluuzhuk-sw-3(config)#username admin privilege 1 secret cisco
msk-donskaya-avshuluuzhuk-sw-3(config)#ip domain-name donskeya.rudn.edu
msk-donskaya-avshuluuzhuk-sw-3(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-avshuluuzhuk-sw-3.donskeya.rudn.edu
Choose the size of the key modulus in the range of 360 to 4096 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

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

msk-donskaya-avshuluuzhuk-sw-3(config)#line vty 0 4
*Mar 1 0:31:34.276: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:31:34.276: %SSH-5-ENABLED: SSH 1.5 has been enabled
msk-donskaya-avshuluuzhuk-sw-3(config-line)#transport input ssh
msk-donskaya-avshuluuzhuk-sw-3(config-line)#exit
msk-donskaya-avshuluuzhuk-sw-3(config)#exit
msk-donskaya-avshuluuzhuk-sw-3#
%SYS-5-CONFIG_I: Configured from console by console
```

Рис. 4: Последовательность команд по первоначальной настройке коммутатора msk-donskaya-sw-3

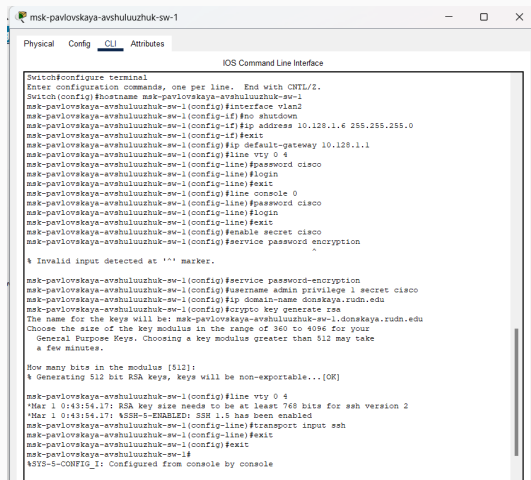
Выполнение лабораторной работы



```
msk-donskaya-avshuluuzhuk-sw-4
Physical Config CLI Attributes
IOS Command Line Interface
msk-donskaya-avshuluuzhuk-sw-3(config)#
msk-donskaya-avshuluuzhuk-sw-3(config)#
msk-donskaya-avshuluuzhuk-sw-3(config)#hostname msk-donskaya-avshuluuzhuk-sw-4
msk-donskaya-avshuluuzhuk-sw-4(config)#interface vian2
msk-donskaya-avshuluuzhuk-sw-4(config-if)#no shutdown
msk-donskaya-avshuluuzhuk-sw-4(config-if)#ip address 10.128.1.5 255.255.255.0
msk-donskaya-avshuluuzhuk-sw-4(config-if)#exit
msk-donskaya-avshuluuzhuk-sw-4(config)#ip default-gateway 10.128.1.1
msk-donskaya-avshuluuzhuk-sw-4(config)#line vty 0 4
msk-donskaya-avshuluuzhuk-sw-4(config-line)#password cisco
msk-donskaya-avshuluuzhuk-sw-4(config-line)#login
msk-donskaya-avshuluuzhuk-sw-4(config-line)#
msk-donskaya-avshuluuzhuk-sw-4(config-line)#exit
msk-donskaya-avshuluuzhuk-sw-4(config)#line console 0
msk-donskaya-avshuluuzhuk-sw-4(config-line)#password cisco
msk-donskaya-avshuluuzhuk-sw-4(config-line)#login
msk-donskaya-avshuluuzhuk-sw-4(config-line)#exit
msk-donskaya-avshuluuzhuk-sw-4(config)#enable secret cisco
msk-donskaya-avshuluuzhuk-sw-4(config)#service password encryption
^
% Invalid input detected at '^' marker.
msk-donskaya-avshuluuzhuk-sw-4(config)#
msk-donskaya-avshuluuzhuk-sw-4(config)#service password encryption
^
% Invalid input detected at '^' marker.
msk-donskaya-avshuluuzhuk-sw-4(config)#service password encryption
^
% Invalid input detected at '^' marker.
msk-donskaya-avshuluuzhuk-sw-4(config)#service password-encryption
msk-donskaya-avshuluuzhuk-sw-4(config)#username admin privilege 1 secret cisco
msk-donskaya-avshuluuzhuk-sw-4(config)#ip domain-name donskeya.rudn.edu
msk-donskaya-avshuluuzhuk-sw-4(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-avshuluuzhuk-sw-4.donskeya.rudn.edu
Choose the size of the key modulus in the range of 360 to 4096 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.
How many bits in the modulus [512]:
% Generating 512 bit RSA keys, keys will be non-exportable...[OK]
msk-donskaya-avshuluuzhuk-sw-4(config)#line vty 0 4
*Mar 1 0:36:20.49: RSA key size needs to be at least 768 bits for ssh version 2
```

Рис. 5: Последовательность команд по первоначальной настройке коммутатора msk-donskaya-sw-4

Выполнение лабораторной работы



```
msk-pavlovskaya-avshuluuzhuk-sw-1
Physical Config CLI Attributes
IOS Command Line Interface

Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msk-pavlovskaya-avshuluuzhuk-sw-1
msk-pavlovskaya-avshuluuzhuk-sw-1(config)#interface vlan2
msk-pavlovskaya-avshuluuzhuk-sw-1(config-if)#no shutdown
msk-pavlovskaya-avshuluuzhuk-sw-1(config-if)#ip address 10.128.1.6 255.255.255.0
msk-pavlovskaya-avshuluuzhuk-sw-1(config-if)#exit
msk-pavlovskaya-avshuluuzhuk-sw-1(config)#ip default-gateway 10.128.1.1
msk-pavlovskaya-avshuluuzhuk-sw-1(config)#line vty 0 4
msk-pavlovskaya-avshuluuzhuk-sw-1(config-line)#password cisco
msk-pavlovskaya-avshuluuzhuk-sw-1(config-line)#login
msk-pavlovskaya-avshuluuzhuk-sw-1(config-line)#exit
msk-pavlovskaya-avshuluuzhuk-sw-1(config)#line console 0
msk-pavlovskaya-avshuluuzhuk-sw-1(config-line)#password cisco
msk-pavlovskaya-avshuluuzhuk-sw-1(config-line)#login
msk-pavlovskaya-avshuluuzhuk-sw-1(config-line)#exit
msk-pavlovskaya-avshuluuzhuk-sw-1(config)#enable secret cisco
msk-pavlovskaya-avshuluuzhuk-sw-1(config)#service password encryption

% Invalid input detected at '^' marker.

msk-pavlovskaya-avshuluuzhuk-sw-1(config)#service password-encryption
msk-pavlovskaya-avshuluuzhuk-sw-1(config)#username admin privilege 1 secret cisco
msk-pavlovskaya-avshuluuzhuk-sw-1(config)#ip domain-name donskeya.rudn.edu
msk-pavlovskaya-avshuluuzhuk-sw-1(config)#crypto key generate rsa
The name for the keys will be: msk-pavlovskaya-avshuluuzhuk-sw-1.donskeya.rudn.edu
Choose the size of the key modulus in the range of 360 to 4096 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

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

msk-pavlovskaya-avshuluuzhuk-sw-1(config)#line vty 0 4
*Mar 1 0:43:54.17: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:43:54.17: %SSH-5-ENABLED: SSH 1.5 has been enabled
msk-pavlovskaya-avshuluuzhuk-sw-1(config-line)#transport input ssh
msk-pavlovskaya-avshuluuzhuk-sw-1(config-line)#exit
msk-pavlovskaya-avshuluuzhuk-sw-1(config)#exit
msk-pavlovskaya-avshuluuzhuk-sw-1#
*SYS-5-CONFIG I: Configured from console by console
```

Рис. 6: Последовательность команд по первоначальной настройке коммутатора msk-pavlovskaya-sw-1

Выводы

В результате выполнения лабораторной работы провели подготовительную работу по первоначальной настройке коммутаторов сети.