

Лабораторная работа №4

Первоначальное конфигурирование сети

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Провести подготовительную работу по первоначальной настройке коммутаторов сети.

Требуется сделать первоначальную настройку коммутаторов сети, представленной на схеме L1. Под первоначальной настройкой понимается указание имени устройства, его IP-адреса, настройка доступа по паролю к виртуальным терминалам и консоли, настройка удалённого доступа к устройству по ssh. При выполнении работы необходимо учитывать соглашение об именовании.

Выполнение лабораторной работы

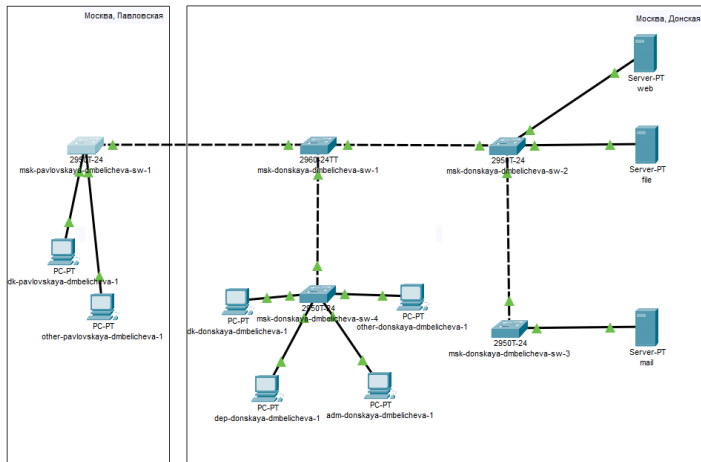
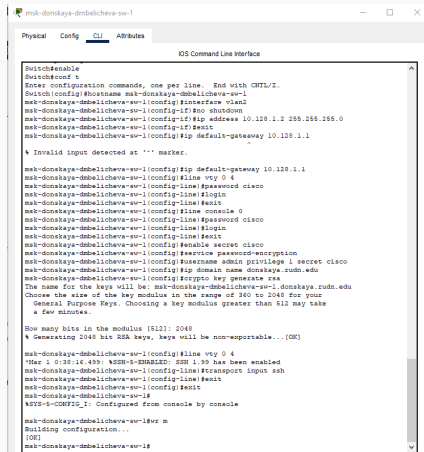


Рис. 1: Размещение коммутаторов и оконечных устройств согласно схеме сети L1

Выполнение лабораторной работы



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

Switch#enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msk-donskaya-dmbelicheva-sw-1
msk-donskaya-dmbelicheva-sw-1(config)#interface vlan2
msk-donskaya-dmbelicheva-sw-1(config-if)#no shutdown
msk-donskaya-dmbelicheva-sw-1(config-if)#ip address 10.128.1.2 255.255.255.0
msk-donskaya-dmbelicheva-sw-1(config-if)#exit
msk-donskaya-dmbelicheva-sw-1(config)#ip default-gateway 10.128.1.1

% Invalid input detected at '^' marker.

msk-donskaya-dmbelicheva-sw-1(config)#ip default-gateway 10.128.1.1
msk-donskaya-dmbelicheva-sw-1(config)#line vty 0 4
msk-donskaya-dmbelicheva-sw-1(config-line)#password cisco
msk-donskaya-dmbelicheva-sw-1(config-line)#login
msk-donskaya-dmbelicheva-sw-1(config-line)#exit
msk-donskaya-dmbelicheva-sw-1(config)#line console 0
msk-donskaya-dmbelicheva-sw-1(config-line)#password cisco
msk-donskaya-dmbelicheva-sw-1(config-line)#login
msk-donskaya-dmbelicheva-sw-1(config-line)#exit
msk-donskaya-dmbelicheva-sw-1(config)#enable secret cisco
msk-donskaya-dmbelicheva-sw-1(config)#service password-encryption
msk-donskaya-dmbelicheva-sw-1(config)#username admin privilege 1 secret cisco
msk-donskaya-dmbelicheva-sw-1(config)#ip domain name donskeya.rudn.edu
msk-donskaya-dmbelicheva-sw-1(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-dmbelicheva-sw-1.donskaya.rudn.edu
Choose the size of the key modulus in the range of 260 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

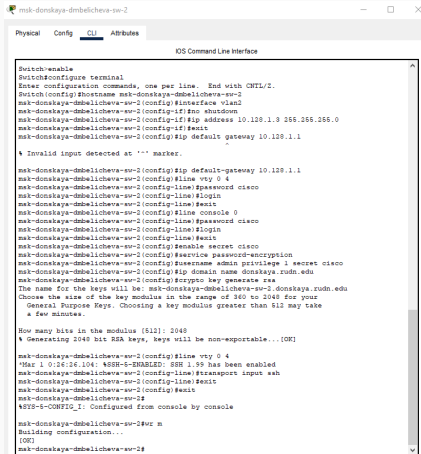
How many bits in the modulus [512]: 2048
% Generating 2048 bit RSA keys, keys will be non-exportable...(OK)

msk-donskaya-dmbelicheva-sw-1(config)#line vty 0 4
*Mar 1 0:30:16.499: %SSH-5-ENABLED: SSH 1.99 has been enabled
msk-donskaya-dmbelicheva-sw-1(config-line)#transport input ssh
msk-donskaya-dmbelicheva-sw-1(config-line)#exit
msk-donskaya-dmbelicheva-sw-1(config)#exit
msk-donskaya-dmbelicheva-sw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-dmbelicheva-sw-1#wr m
Building configuration...
[OK]
msk-donskaya-dmbelicheva-sw-1#
```

Рис. 2: Конфигурация коммутатора msk-donskaya-dmbelicheva-sw-1

Выполнение лабораторной работы



```
msk-donskaya-dmbelicheva-sw-2
Physical Config CLI Attributes
IOS Command Line Interface

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

msk-donskaya-dmbelicheva-sw-2(config)#ip default-gateway 10.128.1.1
msk-donskaya-dmbelicheva-sw-2(config)#line vty 0 4
msk-donskaya-dmbelicheva-sw-2(config-line)#password cisco
msk-donskaya-dmbelicheva-sw-2(config-line)#login
msk-donskaya-dmbelicheva-sw-2(config-line)#exit
msk-donskaya-dmbelicheva-sw-2(config)#line console 0
msk-donskaya-dmbelicheva-sw-2(config-line)#password cisco
msk-donskaya-dmbelicheva-sw-2(config-line)#login
msk-donskaya-dmbelicheva-sw-2(config-line)#exit
msk-donskaya-dmbelicheva-sw-2(config)#enable secret cisco
msk-donskaya-dmbelicheva-sw-2(config)#service password-encryption
msk-donskaya-dmbelicheva-sw-2(config)#username admin privilege 1 secret cisco
msk-donskaya-dmbelicheva-sw-2(config)#ip domain name donskeya.rudn.edu
msk-donskaya-dmbelicheva-sw-2(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-dmbelicheva-sw-2.donskeya.rudn.edu
Choose the size of the key modulus in the range of 360 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

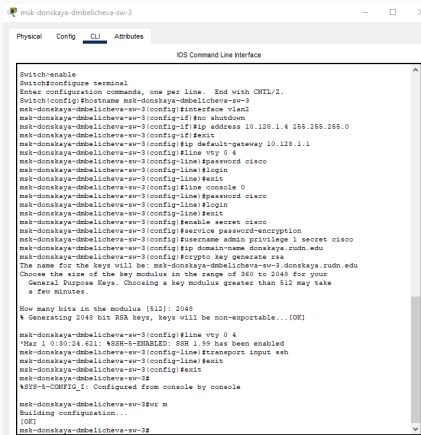
How many bits in the modulus [512]: 2048
% Generating 2048 bit RSA keys, keys will be non-exportable...[OK]

msk-donskaya-dmbelicheva-sw-2(config)#line vty 0 4
*Mar 1 0:26:26.104: %SSH-5-ENABLED: SSH 1.99 has been enabled
msk-donskaya-dmbelicheva-sw-2(config-line)#transport input ssh
msk-donskaya-dmbelicheva-sw-2(config-line)#exit
msk-donskaya-dmbelicheva-sw-2(config)#exit
msk-donskaya-dmbelicheva-sw-2#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-dmbelicheva-sw-2#wr m
Building configuration...
[OK]
msk-donskaya-dmbelicheva-sw-2#
```

Рис. 3: Конфигурация коммутатора msk-donskaya-dmbelicheva-sw-2

Выполнение лабораторной работы



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

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msk-donskaya-dmbelicheva-sw-3
msk-donskaya-dmbelicheva-sw-3(config)#interface vlan3
msk-donskaya-dmbelicheva-sw-3(config-if)#no shutdown
msk-donskaya-dmbelicheva-sw-3(config-if)#ip address 10.120.1.4 255.255.255.0
msk-donskaya-dmbelicheva-sw-3(config-if)#exit
msk-donskaya-dmbelicheva-sw-3(config)#ip default-gateway 10.120.1.1
msk-donskaya-dmbelicheva-sw-3(config)#line vty 0 4
msk-donskaya-dmbelicheva-sw-3(config-line)#password cisco
msk-donskaya-dmbelicheva-sw-3(config-line)#login
msk-donskaya-dmbelicheva-sw-3(config-line)#exit
msk-donskaya-dmbelicheva-sw-3(config)#line console 0
msk-donskaya-dmbelicheva-sw-3(config-line)#password cisco
msk-donskaya-dmbelicheva-sw-3(config-line)#login
msk-donskaya-dmbelicheva-sw-3(config-line)#exit
msk-donskaya-dmbelicheva-sw-3(config)#enable secret cisco
msk-donskaya-dmbelicheva-sw-3(config)#service password-encryption
msk-donskaya-dmbelicheva-sw-3(config)#username admin privilege 1 secret cisco
msk-donskaya-dmbelicheva-sw-3(config)#ip domain-name donskeya.rudn.edu
msk-donskaya-dmbelicheva-sw-3(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-dmbelicheva-sw-3.donskeya.rudn.edu
Choose the size of the key modulus in the range of 360 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

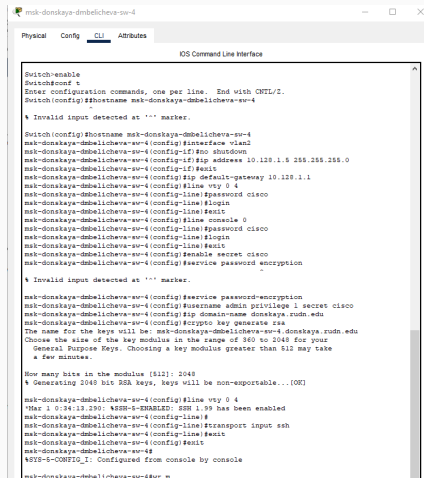
How many bits in the modulus [512]: 2048
% Generating 2048 bit RSA keys, keys will be non-exportable...[OK]

msk-donskaya-dmbelicheva-sw-3(config)#line vty 0 4
*Mar 1 0:30:24.621: %SSH-5-ENABLED: SSH 1.99 has been enabled
msk-donskaya-dmbelicheva-sw-3(config-line)#transport input ssh
msk-donskaya-dmbelicheva-sw-3(config-line)#exit
msk-donskaya-dmbelicheva-sw-3(config)#exit
msk-donskaya-dmbelicheva-sw-3#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-dmbelicheva-sw-3#vr m
Building configuration...
[OK]
msk-donskaya-dmbelicheva-sw-3#
```

Рис. 4: Конфигурация коммутатора msk-donskaya-dmbelicheva-sw-3

Выполнение лабораторной работы



The screenshot shows a web-based configuration interface for a network switch. The top navigation bar includes 'Physical', 'Config', 'CLI', and 'Attributes'. The 'CLI' tab is active, displaying the 'IOS Command Line Interface'. The interface shows a series of configuration commands entered into the switch's command line, with the output of each command displayed below it. The commands configure the switch's hostname, interfaces, IP addresses, default gateway, passwords, and SSH settings.

```
Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msk-donskaya-dmbelicheva-sw-4

% Invalid input detected at '^' marker.

Switch(config)#hostname msk-donskaya-dmbelicheva-sw-4
msk-donskaya-dmbelicheva-sw-4(config)#interface vlan2
msk-donskaya-dmbelicheva-sw-4(config-if)#no shutdown
msk-donskaya-dmbelicheva-sw-4(config-if)#ip address 10.128.1.5 255.255.255.0
msk-donskaya-dmbelicheva-sw-4(config-if)#exit
msk-donskaya-dmbelicheva-sw-4(config)#ip default-gateway 10.128.1.1
msk-donskaya-dmbelicheva-sw-4(config)#line vty 0 4
msk-donskaya-dmbelicheva-sw-4(config-line)#password cisco
msk-donskaya-dmbelicheva-sw-4(config-line)#login
msk-donskaya-dmbelicheva-sw-4(config-line)#exit
msk-donskaya-dmbelicheva-sw-4(config)#line console 0
msk-donskaya-dmbelicheva-sw-4(config-line)#password cisco
msk-donskaya-dmbelicheva-sw-4(config-line)#login
msk-donskaya-dmbelicheva-sw-4(config-line)#exit
msk-donskaya-dmbelicheva-sw-4(config)#enable secret cisco
msk-donskaya-dmbelicheva-sw-4(config)#service password-encryption

% Invalid input detected at '^' marker.

msk-donskaya-dmbelicheva-sw-4(config)#service password-encryption
msk-donskaya-dmbelicheva-sw-4(config)#username admin privilege 1 secret cisco
msk-donskaya-dmbelicheva-sw-4(config)#ip domain-name donskeya.rudn.edu
msk-donskaya-dmbelicheva-sw-4(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-dmbelicheva-sw-4.donskeya.rudn.edu
Choose the size of the key modulus in the range of 360 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

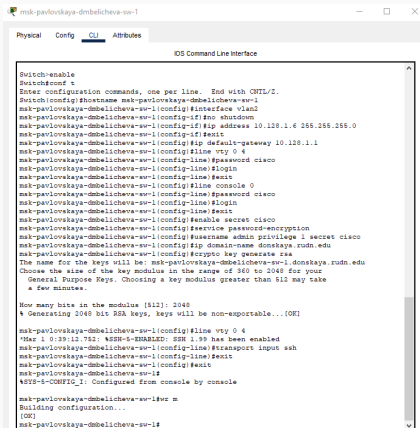
How many bits in the modulus [512]: 2048
% Generating 2048 bit RSA keys, keys will be non-exportable...[OK]

msk-donskaya-dmbelicheva-sw-4(config)#line vty 0 4
*Mar 1 0:24:19.290: %SSH-5-ENABLED: SSH 1.99 has been enabled
msk-donskaya-dmbelicheva-sw-4(config-line)#
msk-donskaya-dmbelicheva-sw-4(config-line)#transport input ssh
msk-donskaya-dmbelicheva-sw-4(config-line)#exit
msk-donskaya-dmbelicheva-sw-4(config)#exit
msk-donskaya-dmbelicheva-sw-4#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-dmbelicheva-sw-4#wr m
```

Рис. 5: Конфигурация коммутатора msk-donskaya-dmbelicheva-sw-4

Выполнение лабораторной работы



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

Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msk-pavlovskaya-dmbelicheva-sw-1
msk-pavlovskaya-dmbelicheva-sw-1(config)#interface vlan2
msk-pavlovskaya-dmbelicheva-sw-1(config-if)#no shutdown
msk-pavlovskaya-dmbelicheva-sw-1(config-if)#ip address 10.128.1.6 255.255.255.0
msk-pavlovskaya-dmbelicheva-sw-1(config-if)#exit
msk-pavlovskaya-dmbelicheva-sw-1(config)#ip default-gateway 10.128.1.1
msk-pavlovskaya-dmbelicheva-sw-1(config)#line vty 0 4
msk-pavlovskaya-dmbelicheva-sw-1(config-line)#password cisco
msk-pavlovskaya-dmbelicheva-sw-1(config-line)#login
msk-pavlovskaya-dmbelicheva-sw-1(config-line)#exit
msk-pavlovskaya-dmbelicheva-sw-1(config)#line console 0
msk-pavlovskaya-dmbelicheva-sw-1(config-line)#password cisco
msk-pavlovskaya-dmbelicheva-sw-1(config-line)#login
msk-pavlovskaya-dmbelicheva-sw-1(config-line)#exit
msk-pavlovskaya-dmbelicheva-sw-1(config)#enable secret cisco
msk-pavlovskaya-dmbelicheva-sw-1(config)#service password-encryption
msk-pavlovskaya-dmbelicheva-sw-1(config)#username admin privilege 1 secret cisco
msk-pavlovskaya-dmbelicheva-sw-1(config)#ip domain-name donskeya.rudn.edu
msk-pavlovskaya-dmbelicheva-sw-1(config)#crypto key generate rsa
The name for the keys will be: msk-pavlovskaya-dmbelicheva-sw-1.donskeya.rudn.edu
Choose the size of the key modulus in the range of 360 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

How many bits in the modulus [512]: 2048
% Generating 2048 bit RSA keys, keys will be non-exportable...[OK]

msk-pavlovskaya-dmbelicheva-sw-1(config)#line vty 0 4
*Mar 1 0:39:12.762: %SSH-5-ENABLED: SSH 1.99 has been enabled
msk-pavlovskaya-dmbelicheva-sw-1(config-line)#transport input ssh
msk-pavlovskaya-dmbelicheva-sw-1(config-line)#exit
msk-pavlovskaya-dmbelicheva-sw-1(config)#exit
msk-pavlovskaya-dmbelicheva-sw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-pavlovskaya-dmbelicheva-sw-1#r m
Building configuration...
[OK]
msk-pavlovskaya-dmbelicheva-sw-1#
```

Рис. 6: Конфигурация коммутатора msk-pavlovskaya-dmbelicheva-sw-1

В результате выполнения данной лабораторной работы я провела подготовительную работу по первоначальной настройке коммутаторов сети.