

Лабораторная работа № 4

Первоначальное конфигурирование сети

Шияпова Д.И.

05 апреля 2025

Российский университет дружбы народов, Москва, Россия

- Шияпова Дарина Илдаровна
- Студентка
- Российский университет дружбы народов
- 1132226458@pfur.ru



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

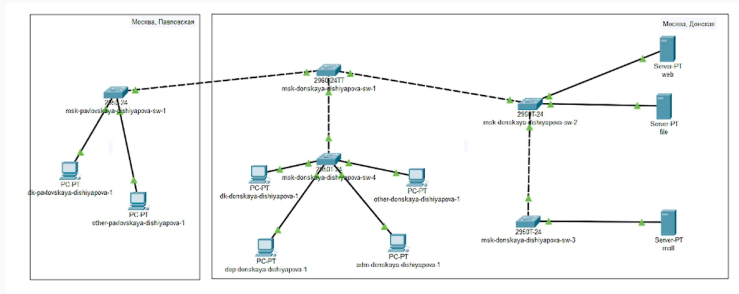


Рис. 1: Размещение коммутаторов и оконечных устройств согласно схеме сети L1

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

msk-chertanovo-dishiyapova-sw-1(config)#ip default-gateway 10.128.1.1
msk-chertanovo-dishiyapova-sw-1(config)#line vty 0 4
msk-chertanovo-dishiyapova-sw-1(config-line)#password cisco
msk-chertanovo-dishiyapova-sw-1(config-line)#login
msk-chertanovo-dishiyapova-sw-1(config-line)#exit
msk-chertanovo-dishiyapova-sw-1(config)#line console 0
msk-chertanovo-dishiyapova-sw-1(config-line)#password cisco
msk-chertanovo-dishiyapova-sw-1(config-line)#login
msk-chertanovo-dishiyapova-sw-1(config-line)#exit
msk-chertanovo-dishiyapova-sw-1(config)#enable secret cisco
msk-chertanovo-dishiyapova-sw-1(config)#login

% Invalid input detected at '^' marker.

msk-chertanovo-dishiyapova-sw-1(config)#service password-encryption

% Invalid input detected at '^' marker.

msk-chertanovo-dishiyapova-sw-1(config)#service password-encryption
msk-chertanovo-dishiyapova-sw-1(config)#username admin privilege 1 secret cisco
msk-chertanovo-dishiyapova-sw-1(config)#ip domain name donskeya.rzd.ru
msk-chertanovo-dishiyapova-sw-1(config)#crypto key generate rsa
The name for the keys will be: msk-chertanovo-dishiyapova-sw-1.donskeya.rzd.ru
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]: 512
% Generating 512 bit RSA keys, keys will be non-exportable...[OK]

msk-chertanovo-dishiyapova-sw-1(config)#line vty 0 4
*Mar 1 01:13:32.1: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 01:13:32.1: SSH-5-DISABLED: SSH 1.5 has been enabled
msk-chertanovo-dishiyapova-sw-1(config-line)#transport input ssh
msk-chertanovo-dishiyapova-sw-1(config-line)#exit
msk-chertanovo-dishiyapova-sw-1(config)#exit
msk-chertanovo-dishiyapova-sw-1#
%CDP-5-CONFIG_ID: Configured from console by console
msk-chertanovo-dishiyapova-sw-1#
```

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

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

msk-donskaya-dishiyapova-sw-2(config-line)#password cisco
msk-donskaya-dishiyapova-sw-2(config-line)#login
msk-donskaya-dishiyapova-sw-2(config-line)#exit
msk-donskaya-dishiyapova-sw-2(config)#line console 0
msk-donskaya-dishiyapova-sw-2(config-line)#password cisco
msk-donskaya-dishiyapova-sw-2(config-line)#login
msk-donskaya-dishiyapova-sw-2(config-line)#exit
msk-donskaya-dishiyapova-sw-2(config)#enable secret cisco
msk-donskaya-dishiyapova-sw-2(config)#service password-encryption
msk-donskaya-dishiyapova-sw-2(config)#username admin privilege 1 secret cisco
msk-donskaya-dishiyapova-sw-2(config)#ip domain name donskeya.rush.edu
msk-donskaya-dishiyapova-sw-2(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-dishiyapova-sw-2.donskeya.rush.edu
Choose the size of the key modulus in the range of 269 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]: 512
% Generating 512 bit RSA keys, keys will be non-exportable...[OK]

msk-donskaya-dishiyapova-sw-2(config)#line vty 0 4
*Mar 2 1:21:43.955: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 2 1:21:43.955: VTYD-2-SSH-101: 201 1:3 has been enabled
msk-donskaya-dishiyapova-sw-2(config-line)#transport input ssh
msk-donskaya-dishiyapova-sw-2(config-line)#end
```

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

Выполнение лабораторной работы

```
msk-donskaya-dishiyarova-sw-3(config-if)#no shutdown
msk-donskaya-dishiyarova-sw-3(config-if)#ip address 10.128.1.4 255.255.255.0
msk-donskaya-dishiyarova-sw-3(config-if)#exit
msk-donskaya-dishiyarova-sw-3(config)#ip default-gateway 10.128.1.1
msk-donskaya-dishiyarova-sw-3(config)#
A invalid input detected at '^' marker.

msk-donskaya-dishiyarova-sw-3(config)#ip default-gateway 10.128.1.1
msk-donskaya-dishiyarova-sw-3(config)#line vty 0 4
msk-donskaya-dishiyarova-sw-3(config-line)#transport cli
msk-donskaya-dishiyarova-sw-3(config-line)#login
msk-donskaya-dishiyarova-sw-3(config-line)#exit
msk-donskaya-dishiyarova-sw-3(config)#line console 0
msk-donskaya-dishiyarova-sw-3(config-line)#password cisco
msk-donskaya-dishiyarova-sw-3(config-line)#login
msk-donskaya-dishiyarova-sw-3(config-line)#end
msk-donskaya-dishiyarova-sw-3(config)#enable secret cisco
msk-donskaya-dishiyarova-sw-3(config)#service password-encryption
msk-donskaya-dishiyarova-sw-3(config)#username admin privilege 1 secret cisco
msk-donskaya-dishiyarova-sw-3(config)#ip domain-name donskaya.ru.msk.edu
msk-donskaya-dishiyarova-sw-3(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-dishiyarova-sw-3.donskaya.ru.msk.edu
Choose the size of the key modulus in the range of 360 to 8196 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

How many bits in the modulus [512]: 512
A Generating key for RSA keys will be non-exportable...[OK]

msk-donskaya-dishiyarova-sw-3(config)#line vty 0 4
*Mar 2 0:57:21.44: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 2 0:57:21.44: SSH-2-ENABLED: SSH 1.9 has been enabled
msk-donskaya-dishiyarova-sw-3(config-line)#transport input ssh
msk-donskaya-dishiyarova-sw-3(config-line)#exit
msk-donskaya-dishiyarova-sw-3(config)#exit
msk-donskaya-dishiyarova-sw-3#
VRRP-000000_01 Configured from console by console

msk-donskaya-dishiyarova-sw-3#show memory
Building configuration...
[OK]
msk-donskaya-dishiyarova-sw-3#
```

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

Выполнение лабораторной работы

```
IOS Command Line Interface
>
% Invalid input detected at '^' marker.

msk-donskaya-dishiyarova-sw-4(config)#ip default-gateway 10.128.1.1
msk-donskaya-dishiyarova-sw-4(config)#line vty 0 4
msk-donskaya-dishiyarova-sw-4(config-line)#password cisco
msk-donskaya-dishiyarova-sw-4(config-line)#login
msk-donskaya-dishiyarova-sw-4(config-line)#exit
msk-donskaya-dishiyarova-sw-4(config)#line console 0
msk-donskaya-dishiyarova-sw-4(config-line)#password cisco
msk-donskaya-dishiyarova-sw-4(config-line)#login
msk-donskaya-dishiyarova-sw-4(config-line)#exit
msk-donskaya-dishiyarova-sw-4(config)#enable secret cisco
msk-donskaya-dishiyarova-sw-4(config)#service password-encryption
msk-donskaya-dishiyarova-sw-4(config)#username admin privilege 1 secret cisco
msk-donskaya-dishiyarova-sw-4(config)#ip domain name donskeya.ruh.edu
msk-donskaya-dishiyarova-sw-4(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-dishiyarova-sw-4.donskeya.ruh.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]: 512
% Generating 512 bit RSA keys, keys will be non-exportable...[OK]

msk-donskaya-dishiyarova-sw-4(config)#line vty 0 4
*Mar 1 0:51:11.547: RSA Key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:51:11.547: SSH-2-ENABLED: SSH 1.5 has been enabled
msk-donskaya-dishiyarova-sw-4(config-line)#transport input ssh
msk-donskaya-dishiyarova-sw-4(config-line)#exit
msk-donskaya-dishiyarova-sw-4(config)#exit
msk-donskaya-dishiyarova-sw-4#
K256-0-000000 is configured from console by console

msk-donskaya-dishiyarova-sw-4#write memory
% Invalid input detected at '^' marker.

msk-donskaya-dishiyarova-sw-4#write memory
Building configuration...
[OK]
msk-donskaya-dishiyarova-sw-4#
```

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

```
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msk-pavlovskaya-sw-1
msk-pavlovskaya-sw-1(config)#interface vlan2
msk-pavlovskaya-sw-1(config-if)#no shutdown
msk-pavlovskaya-sw-1(config-if)#ip address 10.128.1.4 255.255.255.0
msk-pavlovskaya-sw-1(config-if)#exit
msk-pavlovskaya-sw-1(config)#ip default-gateway 10.128.1.1
% Invalid input detected at '^' marker.

msk-pavlovskaya-sw-1(config)#ip default-gateway 10.128.1.1
msk-pavlovskaya-sw-1(config)#line vty 0 4
msk-pavlovskaya-sw-1(config-line)#password cisco
msk-pavlovskaya-sw-1(config-line)#login
msk-pavlovskaya-sw-1(config-line)#exit
msk-pavlovskaya-sw-1(config)#line console 0
msk-pavlovskaya-sw-1(config-line)#password cisco
msk-pavlovskaya-sw-1(config-line)#login
msk-pavlovskaya-sw-1(config-line)#exit
msk-pavlovskaya-sw-1(config)#enable secret cisco
msk-pavlovskaya-sw-1(config)#service password-encryption
% Invalid input detected at '^' marker.

msk-pavlovskaya-sw-1(config)#service password-encryption
msk-pavlovskaya-sw-1(config)#username admin privilege 1 secret cisco
msk-pavlovskaya-sw-1(config)#ip domain-name dshskaya.rudn.edu
msk-pavlovskaya-sw-1(config)#crypto key generate rsa
The name for the keys will be: msk-pavlovskaya-sw-1.dshskaya.rudn.edu
Choose the size of the key modulus in the range of 240 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]: 512
% Generating 512 bit RSA keys, keys will be non-exportable...[OK]

msk-pavlovskaya-sw-1(config)#line vty 0 4
*Mar 1 01:46:37.734: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 01:46:37.734: SSH-1-2RSA2@2: SSH 1.0 has been enabled
msk-pavlovskaya-sw-1(config-line)#transport input ssh
msk-pavlovskaya-sw-1(config-line)#exit
msk-pavlovskaya-sw-1(config)#exit
```

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

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