

Лабораторная работа №4

Первоначальное конфигурирование сети

Шуваев С. А.

Российский университет дружбы народов, Москва, Россия

Информация

- Шуваев Сергей Александрович
- студент
- Российский университет дружбы народов
- 1032224269@pfur.ru
- <https://Grinders060050.github.io/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

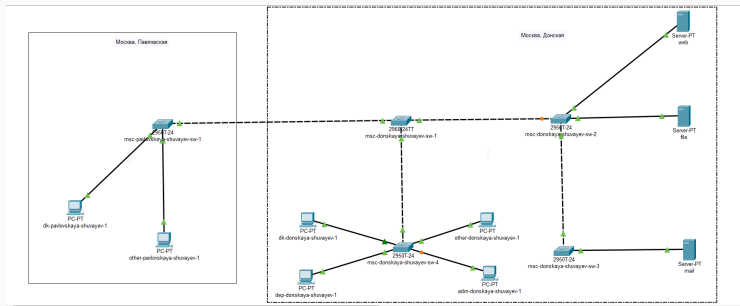


Figure 1: Размещение коммутаторов и оконечных устройств согласно схеме сети L1

```
msc-donskaya-shuvayev-sw-1>enable
Password:
msc-donskaya-shuvayev-sw-1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
msc-donskaya-shuvayev-sw-1(config)#hostname msc-donskaya-shuvayev-sw-1
msc-donskaya-shuvayev-sw-1(config)#interface vlan2
msc-donskaya-shuvayev-sw-1(config-if)#no shutdown
msc-donskaya-shuvayev-sw-1(config-if)#ip address 10.128.1.2 255.255.255.0
msc-donskaya-shuvayev-sw-1(config-if)#exit
msc-donskaya-shuvayev-sw-1(config)#ip default-gateway 10.128.1.1
msc-donskaya-shuvayev-sw-1(config)#line vty 0 4
msc-donskaya-shuvayev-sw-1(config-line)#password cisco
msc-donskaya-shuvayev-sw-1(config-line)#login
msc-donskaya-shuvayev-sw-1(config-line)#exit
msc-donskaya-shuvayev-sw-1(config)#line console 0
msc-donskaya-shuvayev-sw-1(config-line)#password cisco
msc-donskaya-shuvayev-sw-1(config-line)#login
msc-donskaya-shuvayev-sw-1(config-line)#exit
msc-donskaya-shuvayev-sw-1(config)#enable secret cisco
msc-donskaya-shuvayev-sw-1(config)#service password-encryption
msc-donskaya-shuvayev-sw-1(config)#username admin privilege 1 secret cisco
msc-donskaya-shuvayev-sw-1(config)#ip domain name donskeya.rudn.edu
msc-donskaya-shuvayev-sw-1(config)#crypto key generate rsa
The name for the keys will be: msc-donskaya-shuvayev-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]

msc-donskeya-shuvayev-sw-1(config)#line vty 0 4
*Mar 1 0:21:26.972: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:21:26.972: %SSH-5-ENABLED: SSH 1.5 has been enabled
msc-donskeya-shuvayev-sw-1(config-line)#transport input ssh
msc-donskeya-shuvayev-sw-1(config-line)#exit
msc-donskeya-shuvayev-sw-1(config)#exit
msc-donskeya-shuvayev-sw-1#
%SYS-5-CONFIG_I: Configured from console by console

msc-donskeya-shuvayev-sw-1#write memory
Building configuration...
[OK]
msc-donskeya-shuvayev-sw-1#
```

Figure 2: Конфигурация коммутатора msc-donskaya-shuvayev-sw-1

Выполнение лабораторной работы

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msc-donskaya-shuvayev-sw-2
msc-donskaya-shuvayev-sw-2(config)#interface vlan2
msc-donskaya-shuvayev-sw-2(config-if)#no shutdown
msc-donskaya-shuvayev-sw-2(config-if)#ip address 10.128.1.3 255.255.255.0
msc-donskaya-shuvayev-sw-2(config-if)#exit
msc-donskaya-shuvayev-sw-2(config)#ip default-gateway 10.128.1.1

% Invalid input detected at '^' marker.

msc-donskaya-shuvayev-sw-2(config)#ip default-gateway 10.128.1.1
msc-donskaya-shuvayev-sw-2(config)#line vty 0 4
msc-donskaya-shuvayev-sw-2(config-line)#password cisco
msc-donskaya-shuvayev-sw-2(config-line)#login
msc-donskaya-shuvayev-sw-2(config-line)#exit
msc-donskaya-shuvayev-sw-2(config)#line console 0
msc-donskaya-shuvayev-sw-2(config-line)#password cisco
msc-donskaya-shuvayev-sw-2(config-line)#login
msc-donskaya-shuvayev-sw-2(config-line)#exit
msc-donskaya-shuvayev-sw-2(config)#enable secret cisco
msc-donskaya-shuvayev-sw-2(config)#service password-encryption
msc-donskaya-shuvayev-sw-2(config)#username admin privilege 1 secret cisco
msc-donskaya-shuvayev-sw-2(config)#ip domain-name donskeya.rudn.edu
msc-donskaya-shuvayev-sw-2(config)#crypto key generate rsa
The name for the keys will be: msc-donskaya-shuvayev-sw-2.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]

msc-donskaya-shuvayev-sw-2(config)#line vty 0 4
*Mar 1 0:39:42.544: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:39:42.544: %SSH-5-ENABLED: SSH 1.5 has been enabled
msc-donskaya-shuvayev-sw-2(config-line)#transport input ssh
msc-donskaya-shuvayev-sw-2(config-line)#exit
msc-donskaya-shuvayev-sw-2(config)#exit
msc-donskaya-shuvayev-sw-2#
%SYS-5-CONFIG_I: Configured from console by console

msc-donskaya-shuvayev-sw-2#write memory
Building configuration...
[OK]
msc-donskaya-shuvayev-sw-2#
```

Figure 3: Конфигурация коммутатора msc-donskaya-shuvayev-sw-2


```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msc-donskaya-shuvayev-sw-3
msc-donskaya-shuvayev-sw-3(config)#interface vlan2
msc-donskaya-shuvayev-sw-3(config-if)#no shutdown
msc-donskaya-shuvayev-sw-3(config-if)#ip address 10.128.1.4 255.255.255.0
msc-donskaya-shuvayev-sw-3(config-if)#exit
msc-donskaya-shuvayev-sw-3(config)#ip default-gateway 10.128.1.1
msc-donskaya-shuvayev-sw-3(config)#line vty 0 4
msc-donskaya-shuvayev-sw-3(config-line)#password cisco
msc-donskaya-shuvayev-sw-3(config-line)#login
msc-donskaya-shuvayev-sw-3(config-line)#exit
msc-donskaya-shuvayev-sw-3(config)#line console 0
msc-donskaya-shuvayev-sw-3(config-line)#password cisco
msc-donskaya-shuvayev-sw-3(config-line)#login
msc-donskaya-shuvayev-sw-3(config-line)#exit
msc-donskaya-shuvayev-sw-3(config)#enable secret cisco
msc-donskaya-shuvayev-sw-3(config)#service password-encryption
msc-donskaya-shuvayev-sw-3(config)#username admin privilege 1 secret cisco
msc-donskaya-shuvayev-sw-3(config)#ip domain-name donskeya.rudn.edu
msc-donskaya-shuvayev-sw-3(config)#crypto key generate rsa
The name for the keys will be: msc-donskaya-shuvayev-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]

msc-donskaya-shuvayev-sw-3(config)#line vty 0 4
*Mar 1 0:46:16.511: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:46:16.511: %SSH-5-ENABLED: SSH 1.5 has been enabled
msc-donskaya-shuvayev-sw-3(config-line)#transport input ssh
msc-donskaya-shuvayev-sw-3(config-line)#exit
msc-donskaya-shuvayev-sw-3(config)#exit
msc-donskaya-shuvayev-sw-3#
%SYS-5-CONFIG_I: Configured from console by console

msc-donskaya-shuvayev-sw-3#write memory
Building configuration...
[OK]
msc-donskaya-shuvayev-sw-3#
```

Figure 4: Конфигурация коммутатора msc-donskaya-shuvayev-sw-3

Выполнение лабораторной работы

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msc-donskaya-shuvayev-sw-4
msc-donskaya-shuvayev-sw-4(config)#interface vlan2
msc-donskaya-shuvayev-sw-4(config-if)#no shutdown
msc-donskaya-shuvayev-sw-4(config-if)#ip address 10.128.1.5 255.255.255.0
msc-donskaya-shuvayev-sw-4(config-if)#exit
msc-donskaya-shuvayev-sw-4(config)#ip default gateway 10.128.1.1
^
% Invalid input detected at '^' marker.

msc-donskaya-shuvayev-sw-4(config)#ip default-gateway 10.128.1.1
msc-donskaya-shuvayev-sw-4(config)#line vty 0 4
msc-donskaya-shuvayev-sw-4(config-line)#password cisco
msc-donskaya-shuvayev-sw-4(config-line)#login
msc-donskaya-shuvayev-sw-4(config-line)#exit
msc-donskaya-shuvayev-sw-4(config)#line console 0
msc-donskaya-shuvayev-sw-4(config-line)#password cisco
msc-donskaya-shuvayev-sw-4(config-line)#login
msc-donskaya-shuvayev-sw-4(config-line)#exit
msc-donskaya-shuvayev-sw-4(config)#enable secret cisco
msc-donskaya-shuvayev-sw-4(config)#service password-encryption
msc-donskaya-shuvayev-sw-4(config)#username admin privilege 1 secret cisco
msc-donskaya-shuvayev-sw-4(config)#ip domain-name donsкаya.rudn.edu
msc-donskaya-shuvayev-sw-4(config)#crypto key generate rsa
The name for the keys will be: msc-donskaya-shuvayev-sw-4.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]

msc-donskaya-shuvayev-sw-4(config)#line vty 0 4
*Mar 1 0:55:1.532: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:55:1.532: %SSH-5-ENABLED: SSH 1.5 has been enabled
msc-donskaya-shuvayev-sw-4(config-line)#transport input ssh
msc-donskaya-shuvayev-sw-4(config-line)#exit
msc-donskaya-shuvayev-sw-4(config)#exit
msc-donskaya-shuvayev-sw-4#
%SYS-5-CONFIG_I: Configured from console by console

msc-donskaya-shuvayev-sw-4#write memory
Building configuration...
[OK]
msc-donskaya-shuvayev-sw-4#
```

Figure 5: Конфигурация коммутатора msc-donskaya-shuvayev-sw-4

```
Switch#enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msc-pavlovskaya-shuvayev-sw1
msc-pavlovskaya-shuvayev-sw1(config)#interface vlan3
msc-pavlovskaya-shuvayev-sw1(config-if)#no shutdown
msc-pavlovskaya-shuvayev-sw1(config-if)#ip address 10.128.1.6 255.255.255.0
msc-pavlovskaya-shuvayev-sw1(config-if)#exit
msc-pavlovskaya-shuvayev-sw1(config)#ip default gateway 10.128.1.1
msc-pavlovskaya-shuvayev-sw1(config)#exit
% Invalid input detected at '^' marker.

msc-pavlovskaya-shuvayev-sw1(config)#ip default-gateway 10.128.1.1
msc-pavlovskaya-shuvayev-sw1(config)#line vty 0 4
msc-pavlovskaya-shuvayev-sw1(config-line)#password cisco
msc-pavlovskaya-shuvayev-sw1(config-line)#login
msc-pavlovskaya-shuvayev-sw1(config-line)#exit
msc-pavlovskaya-shuvayev-sw1(config)#line console 0
msc-pavlovskaya-shuvayev-sw1(config-line)#password cisco
msc-pavlovskaya-shuvayev-sw1(config-line)#login
msc-pavlovskaya-shuvayev-sw1(config-line)#exit
msc-pavlovskaya-shuvayev-sw1(config)#enable secret cisco
msc-pavlovskaya-shuvayev-sw1(config)#service password-encryption
msc-pavlovskaya-shuvayev-sw1(config)#username admin privilege 1 secret cisco
msc-pavlovskaya-shuvayev-sw1(config)#ip domain-name donskaya.rudn.edu
msc-pavlovskaya-shuvayev-sw1(config)#crypto key generate rsa
The name for the keys will be: msc-pavlovskaya-shuvayev-sw1.donskaya.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]

msc-pavlovskaya-shuvayev-sw1(config)#line vty 0 4
*Mar 1 1:1:30.130: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 1:1:30.130: %SSH-5-KNABLED: SSH 1.5 has been enabled
msc-pavlovskaya-shuvayev-sw1(config-line)#transport input ssh
msc-pavlovskaya-shuvayev-sw1(config-line)#exit
msc-pavlovskaya-shuvayev-sw1(config)#exit
msc-pavlovskaya-shuvayev-sw1#
MSYS-5-CONFIG_I: Configured from console by console

msc-pavlovskaya-shuvayev-sw1#wr memory
Building configuration...
[OK]
msc-pavlovskaya-shuvayev-sw1#
```

Figure 6: Конфигурация коммутатора msc-pavlovskaya-shuvayev-sw-1

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