

# Лабораторная работа №1

## Первоначальное конфигурирование сети

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## Информация

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Провести подготовительную работу по первоначальной настройке коммутаторов сети.

Требуется сделать первоначальную настройку коммутаторов сети, представленной на схеме L1 (см. рис. 3.1 из раздела 3.3). 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.

Создадим новый проект с названием lab\_PT-04.pkt.

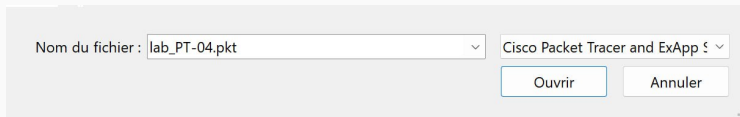


Рис. 1: новый проект

В логической рабочей области Packet Tracer разместим коммутаторы и оконечные устройства согласно схеме сети L1 (схема приведена в лабораторной работе) и соединим их через соответствующие интерфейсы.

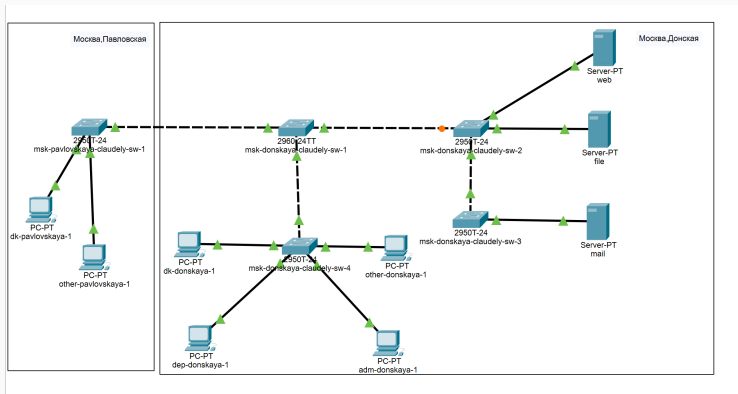


Рис. 2: Размещение коммутаторов и оконченных устройств согласно схеме сети L1.



устройств согласно схеме сети L1. Используя типовую конфигурацию коммутатора, настроим все коммутаторы, изменяя название устройства и его IP-адрес согласно плану IP

# Выполнение лабораторной работы

```
msk-donskaya-claudely-sw-1

Physical Config CLI Attributes

IOS Command Line

$LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

Switch>enable
Switch#configure terminal
^
% Invalid input detected at '^' marker.

Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msk-donskaya-claudely-1
msk-donskaya-claudely-1(config)#interface vlan2
msk-donskaya-claudely-1(config-if)#no shutdown
msk-donskaya-claudely-1(config-if)#ip address 10.128.1.2 255.255.255.0
msk-donskaya-claudely-1(config-if)#exit
msk-donskaya-claudely-1(config)#
msk-donskaya-claudely-1(config)#ip default-gateway 10.128.1.1
msk-donskaya-claudely-1(config)#
msk-donskaya-claudely-1(config)#line vty 0 4
msk-donskaya-claudely-1(config-line)#password cisco
msk-donskaya-claudely-1(config-line)#login
msk-donskaya-claudely-1(config-line)#exit
msk-donskaya-claudely-1(config)#
msk-donskaya-claudely-1(config)#line console 0
msk-donskaya-claudely-1(config-line)#password cisco
msk-donskaya-claudely-1(config-line)#login
msk-donskaya-claudely-1(config-line)#exit
msk-donskaya-claudely-1(config)#
msk-donskaya-claudely-1(config)#enable secret cisco
msk-donskaya-claudely-1(config)#service password-encryption
msk-donskaya-claudely-1(config)#username admin privilege 1 secret cisco
msk-donskaya-claudely-1(config)#
msk-donskaya-claudely-1(config)#ip domain-name donskeya.rudn.edu
msk-donskaya-claudely-1(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-claudely-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-claudely-1(config)#line vty 0 4
*Mar 1 0:35:56.255: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:35:56.256: %SSH-5-ENABLED: SSH 1.5 has been enabled
msk-donskaya-claudely-1(config-line)#transport input ssh
msk-donskaya-claudely-1(config-line)#exit
msk-donskaya-claudely-1(config)#exit
msk-donskaya-claudely-1#
$SYS-5-CONFIG_1: Configured from console by console

msk-donskaya-claudely-1#write memory
Building configuration...
[OK]
msk-donskaya-claudely-1#
```

# Выполнение лабораторной работы

```
msk-donskaya-claudely-sw-2
Physical Config CLI Attributes

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

msk-donskaya-claudely-sw-2(config-line)#password cisco
msk-donskaya-claudely-sw-2(config-line)#login
msk-donskaya-claudely-sw-2(config-line)#exit
msk-donskaya-claudely-sw-2(config)#
msk-donskaya-claudely-sw-2(config)#line console 0
msk-donskaya-claudely-sw-2(config-line)#password cisco
msk-donskaya-claudely-sw-2(config-line)#login
msk-donskaya-claudely-sw-2(config-line)#exit
msk-donskaya-claudely-sw-2(config)#
msk-donskaya-claudely-sw-2(config)#enable secret cisco
msk-donskaya-claudely-sw-2(config)#service password-encryption
^
% Invalid input detected at '^' marker.

msk-donskaya-claudely-sw-2(config)#service password-encryption
msk-donskaya-claudely-sw-2(config)#username admin privilege 1 secret cisco
msk-donskaya-claudely-sw-2(config)#ip domain-name donskeya.rudn.edu
msk-donskaya-claudely-sw-2(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-claudely-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]

msk-donskaya-claudely-sw-2(config)#line vty 0 4
*Mar 1 0:45:24.178: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:45:24.178: %SSH-5-ENABLED: SSH 1.5 has been enabled
msk-donskaya-claudely-sw-2(config-line)#transport input ssh
msk-donskaya-claudely-sw-2(config-line)#exit
msk-donskaya-claudely-sw-2(config)#exit
msk-donskaya-claudely-sw-2#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-claudely-sw-2#write memory
Building configuration...
[OK]
msk-donskaya-claudely-sw-2#
```

# Выполнение лабораторной работы

```
msk-donskaya-claudely-sw-3
Physical Config CLI Attributes

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msk-donskaya-claudely-sw-3
msk-donskaya-claudely-sw-3(config)#interface vlan2
msk-donskaya-claudely-sw-3(config-if)#no shutdown
msk-donskaya-claudely-sw-3(config-if)#ip address 10.128.1.4 255.255.255.0
msk-donskaya-claudely-sw-3(config-if)#exit
msk-donskaya-claudely-sw-3(config)# ip default-gateway 10.128.1.1
msk-donskaya-claudely-sw-3(config)#line vty 0 4
msk-donskaya-claudely-sw-3(config-line)#password cisco
msk-donskaya-claudely-sw-3(config-line)#login
msk-donskaya-claudely-sw-3(config-line)#exit
msk-donskaya-claudely-sw-3(config)#
msk-donskaya-claudely-sw-3(config)#line console 0
msk-donskaya-claudely-sw-3(config-line)#password cisco
msk-donskaya-claudely-sw-3(config-line)#login
msk-donskaya-claudely-sw-3(config-line)#exit
msk-donskaya-claudely-sw-3(config)#
msk-donskaya-claudely-sw-3(config)#enable secret cisco
msk-donskaya-claudely-sw-3(config)#service password-encryption
msk-donskaya-claudely-sw-3(config)#username admin privilege 1 secret cisco
msk-donskaya-claudely-sw-3(config)#
msk-donskaya-claudely-sw-3(config)#ip domain-name donskeya.rudn.edu
msk-donskaya-claudely-sw-3(config)#crypto key generate rsa
^
% Invalid input detected at '^' marker.

msk-donskaya-claudely-sw-3(config)#
msk-donskaya-claudely-sw-3(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-claudely-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-claudely-sw-3(config)#line vty 0 4
*Mar 1 0:52:27.6: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:52:27.6: %SSH-5-ENABLED: SSH 1.5 has been enabled
msk-donskaya-claudely-sw-3(config-line)#transport input ssh
msk-donskaya-claudely-sw-3(config-line)#exit
msk-donskaya-claudely-sw-3(config)#exit
msk-donskaya-claudely-sw-3#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-claudely-sw-3#write memory
Building configuration...
[OK]
msk-donskaya-claudely-sw-3#
```

# Выполнение лабораторной работы

```
msk-donskaya-claudely-sw-4

Physical Config CLI Attributes

IOS

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/11, changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/16, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/16, changed state to up

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msk-donskaya-claudely-sw-4
msk-donskaya-claudely-sw-4(config)#interface vlan2
msk-donskaya-claudely-sw-4(config-if)#no shutdown
msk-donskaya-claudely-sw-4(config-if)#ip address 10.128.1.5 255.255.255.0
msk-donskaya-claudely-sw-4(config-if)#exit
msk-donskaya-claudely-sw-4(config)#
msk-donskaya-claudely-sw-4(config)#ip default-gateway 10.128.1.1
msk-donskaya-claudely-sw-4(config)#line vty 0 4
msk-donskaya-claudely-sw-4(config-line)#password cisco
msk-donskaya-claudely-sw-4(config-line)#login
msk-donskaya-claudely-sw-4(config-line)#exit
msk-donskaya-claudely-sw-4(config)#
msk-donskaya-claudely-sw-4(config)#line console 0
msk-donskaya-claudely-sw-4(config-line)#password cisco
msk-donskaya-claudely-sw-4(config-line)#login
msk-donskaya-claudely-sw-4(config-line)#exit
msk-donskaya-claudely-sw-4(config)#
msk-donskaya-claudely-sw-4(config)#enable secret cisco
msk-donskaya-claudely-sw-4(config)#service password-encryption
msk-donskaya-claudely-sw-4(config)#username admin privilege 1 secret cisco
msk-donskaya-claudely-sw-4(config)#ip domain-name donskeya.rudn.edu
msk-donskaya-claudely-sw-4(config)#line vty 0 4
msk-donskaya-claudely-sw-4(config-line)#exit
msk-donskaya-claudely-sw-4(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-claudely-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-claudely-sw-4(config)#line vty 0 4
*Mar 1 0:58:32.234: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:58:32.234: %SSH-5-ENABLED: SSH 1.5 has been enabled
msk-donskaya-claudely-sw-4(config-line)#transport input ssh
msk-donskaya-claudely-sw-4(config-line)#exit
msk-donskaya-claudely-sw-4(config)#exit
msk-donskaya-claudely-sw-4#
%SYS-5-CONFIG_I: Configured from console by console

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

# Выполнение лабораторной работы

```
msk-pavlovskaya-claudely-sw-1
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-pavlovskaya-claudely-sw-1
msk-pavlovskaya-claudely-sw-1(config)#interface vlan2
msk-pavlovskaya-claudely-sw-1(config-if)#no shutdown
msk-pavlovskaya-claudely-sw-1(config-if)#ip address 10.128.1.6 255.255.255.0
msk-pavlovskaya-claudely-sw-1(config-if)#exit
msk-pavlovskaya-claudely-sw-1(config)#
msk-pavlovskaya-claudely-sw-1(config)#ip default-gateway 10.128.1.1
msk-pavlovskaya-claudely-sw-1(config)#line vty 0 4
msk-pavlovskaya-claudely-sw-1(config-line)#password cisco
msk-pavlovskaya-claudely-sw-1(config-line)#login
msk-pavlovskaya-claudely-sw-1(config-line)#exit
msk-pavlovskaya-claudely-sw-1(config)#
msk-pavlovskaya-claudely-sw-1(config)#enable secret cisco
msk-pavlovskaya-claudely-sw-1(config)#
msk-pavlovskaya-claudely-sw-1(config)#line console 0
msk-pavlovskaya-claudely-sw-1(config-line)#password cisco
msk-pavlovskaya-claudely-sw-1(config-line)#login
msk-pavlovskaya-claudely-sw-1(config-line)#exit
msk-pavlovskaya-claudely-sw-1(config)#
msk-pavlovskaya-claudely-sw-1(config)#enable secret cisco
msk-pavlovskaya-claudely-sw-1(config)#service password-encryption
msk-pavlovskaya-claudely-sw-1(config)#username admin privilege 1 secret cisco
msk-pavlovskaya-claudely-sw-1(config)#ip domain dnskaya.rudn.edu
msk-pavlovskaya-claudely-sw-1(config)#

% Invalid input detected at '^' marker.]

msk-pavlovskaya-claudely-sw-1(config)#ip domain-name dnskaya.rudn.edu
msk-pavlovskaya-claudely-sw-1(config)#line vty 0 4
msk-pavlovskaya-claudely-sw-1(config-line)#exit
msk-pavlovskaya-claudely-sw-1(config)#crypto key generate rsa
The name for the keys will be: msk-pavlovskaya-claudely-sw-1.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]

msk-pavlovskaya-claudely-sw-1(config)#line vty 0 4
*Mar 1 1:6:16.91: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 1:6:16.91: %SSH-5-ENABLED: SSH 1.5 has been enabled
msk-pavlovskaya-claudely-sw-1(config-line)#transport input ssh
msk-pavlovskaya-claudely-sw-1(config-line)#exit
msk-pavlovskaya-claudely-sw-1(config)#exit
msk-pavlovskaya-claudely-sw-1#
%SYS-5-COFIG_1: Configured from console by console

msk-pavlovskaya-claudely-sw-1#write memory
Building configuration...
[OK]
msk-pavlovskaya-claudely-sw-1#
```

## Выводы

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В ходе выполнения лабораторной работы мы научились проводить подготовительную работу по первоначальной настройке коммутаторов сети.