

# Лабораторная работа №2

## Администрирование локальных сетей

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## Информация

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- НПИбд-01-22 (1132222009)
- Российский университет дружбы народов
- <https://github.com/chelibos?tab=repositories>

Получить основные навыки по начальному конфигурированию оборудования Cisco.

## Выполнение лабораторной работы

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Воссоздаю топологию из текста лабораторной работы. Использую 2 ПК, маршрутизатор и коммутатор

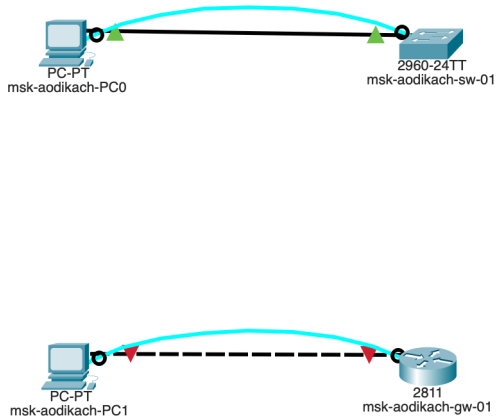
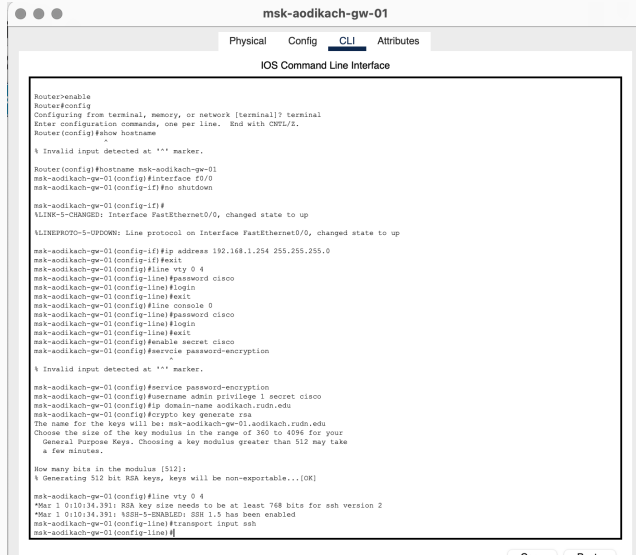


Рис. 1: Топология

Провожу настройку маршрутизатора. Задаю имя, ip-адрес и маску, пароль, задаю доступ через telnet и ssh и сохраняю конфигурацию в отдельный файл



```
msk-aodikach-gw-01
Physical  Config  CLI  Attributes
IOS Command Line Interface

Router>enable
Router#config
Configuring from terminal, memory, or network [terminal]? terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#show hostname
^
% Invalid input detected at '^' marker.

Router(config)#hostname msk-aodikach-gw-01
msk-aodikach-gw-01(config)#interface f0/0
msk-aodikach-gw-01(config-if)#no shutdown

msk-aodikach-gw-01(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

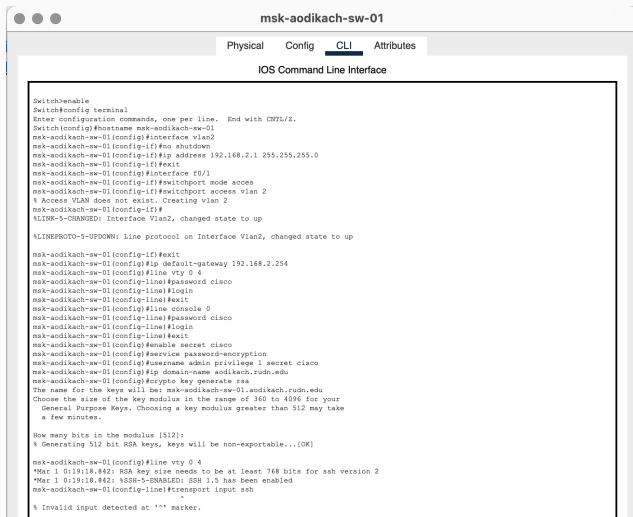
msk-aodikach-gw-01(config-if)#ip address 192.168.1.254 255.255.255.0
msk-aodikach-gw-01(config-if)#exit
msk-aodikach-gw-01(config)#line vty 0 4
msk-aodikach-gw-01(config-line)#password cisco
msk-aodikach-gw-01(config-line)#login
msk-aodikach-gw-01(config-line)#exit
msk-aodikach-gw-01(config)#line console 0
msk-aodikach-gw-01(config-line)#password cisco
msk-aodikach-gw-01(config-line)#login
msk-aodikach-gw-01(config-line)#exit
msk-aodikach-gw-01(config)#enable secret cisco
msk-aodikach-gw-01(config)#service password-encryption
^
% Invalid input detected at '^' marker.

msk-aodikach-gw-01(config)#service password-encryption
msk-aodikach-gw-01(config)#username admin privilege 1 secret cisco
msk-aodikach-gw-01(config)#ip domain-name aodikach.rudn.edu
msk-aodikach-gw-01(config)#crypto key generate rsa
The name for the keys will be: msk-aodikach-gw-01.aodikach.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-aodikach-gw-01(config)#line vty 0 4
*Mar 1 0:10:34.391: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:10:34.391: %SSH-5-ENABLED: SSH 1.5 has been enabled
msk-aodikach-gw-01(config-line)#transport input ssh
msk-aodikach-gw-01(config-line)#
```

Провожу настройку коммутатора. Задаю имя, ip-адрес и маску, привязываю интерфейс Fast Ethernet с номером 1 к vlan 2, задаю адрес шлюза, пароль, задаю доступ через telnet и ssh, доступ 1-го уровня по паролю и сохраняю конфигурацию в отдельный файл



```
msk-aodikach-sw-01
Physical  Config  CLI  Attributes
IOS Command Line Interface

Switch>enable
Switch#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msk-aodikach-sw-01
msk-aodikach-sw-01(config)#interface vlan2
msk-aodikach-sw-01(config-if)#no shutdown
msk-aodikach-sw-01(config-if)#ip address 192.168.2.1 255.255.255.0
msk-aodikach-sw-01(config-if)#exit
msk-aodikach-sw-01(config)#interface f0/1
msk-aodikach-sw-01(config-if)#switchport mode access
msk-aodikach-sw-01(config-if)#switchport access vlan 2
% Access VLAN does not exist. Creating vlan 2
msk-aodikach-sw-01(config-if)#
%LINK-3-CHANGED: Interface Vlan2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan2, changed state to up

msk-aodikach-sw-01(config-if)#exit
msk-aodikach-sw-01(config)#ip default-gateway 192.168.2.254
msk-aodikach-sw-01(config)#line vty 0 4
msk-aodikach-sw-01(config-line)#password cisco
msk-aodikach-sw-01(config-line)#login
msk-aodikach-sw-01(config-line)#exit
msk-aodikach-sw-01(config)#line console 0
msk-aodikach-sw-01(config-line)#password cisco
msk-aodikach-sw-01(config-line)#login
msk-aodikach-sw-01(config-line)#exit
msk-aodikach-sw-01(config)#enable secret cisco
msk-aodikach-sw-01(config)#service password-encryption
msk-aodikach-sw-01(config)#username admin privilege 1 secret cisco
msk-aodikach-sw-01(config)#ip domain-name aodikach.rudn.edu
msk-aodikach-sw-01(config)#crypto key generate rsa
The name for the keys will be: msk-aodikach-sw-01.aodikach.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-aodikach-sw-01(config)#line vty 0 4
*Mar 1 0:19:18.842: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:19:18.842: %SSH-5-ENABLED: SSH 1.5 has been enabled
msk-aodikach-sw-01(config-line)#transport input ssh
^
% Invalid input detected at '^' marker.
```



# Проверяю работоспособность соединения между ПК0 и маршрутизатором

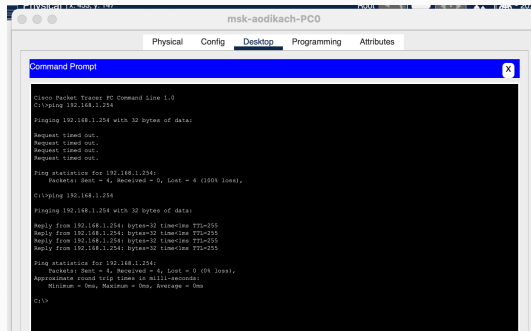
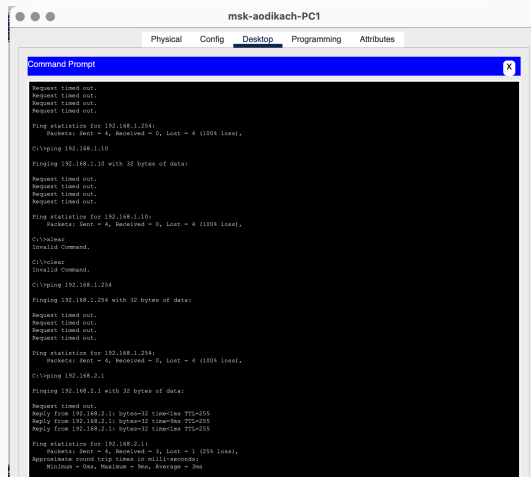


Рис. 4: Работа команды ping

# Проверяю работоспособность соединения между ПК1 и коммутатора



```
msk-aodikach-PC1
Physical Config Desktop Programming Attributes
Command Prompt
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.254:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>clear
Invalid Command.

C:\>clear
Invalid Command.

C:\>ping 192.168.1.234

Pinging 192.168.1.234 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.234:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.2.1

Pinging 192.168.2.1 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.1: bytes=32 time=1ms TTL=255
Reply from 192.168.2.1: bytes=32 time=1ms TTL=255
Reply from 192.168.2.1: bytes=32 time=1ms TTL=255

Ping statistics for 192.168.2.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 5ms, Average = 3ms
```

Рис. 5: Работа команды ping

## Пробую подключиться к маршрутизатору с помощью telnet и ssh

```
Pinging 192.168.1.254 with 32 bytes of data:

Reply from 192.168.1.254: bytes=32 time<1ms TTL=255
Reply from 192.168.1.254: bytes=32 time<1ms TTL=255
Reply from 192.168.1.254: bytes=32 time<1ms TTL=255
Reply from 192.168.1.254: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>telnet 192.168.1.254
Trying 192.168.1.254 ...Open

[Connection to 192.168.1.254 closed by foreign host]
C:\>telnet 192.168.1.254
Trying 192.168.1.254 ...Open

[Connection to 192.168.1.254 closed by foreign host]
C:\>
C:\>
C:\>ssh -l admin 192.168.1.254
Invalid Command.

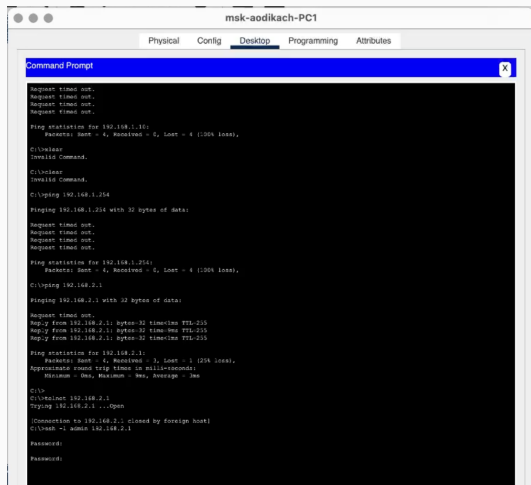
C:\>ssh -l admin 192.168.1.254

Password:

msk-aodikach-gw-01>enable
Password:
msk-aodikach-gw-01#exit

[Connection to 192.168.1.254 closed by foreign host]
C:\>|
```

# Пробую подключиться к коммутатору с помощью telnet и ssh



```
msk-aodikach-PC1
Physical Config Desktop Programming Attributes

Command Prompt

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>clear
Invalid Command.

C:\>clear
Invalid Command.

C:\>ping 192.168.1.254

Pinging 192.168.1.254 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.254:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.2.1

Pinging 192.168.2.1 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.1: bytes=32 time=1ms TTL=255
Reply from 192.168.2.1: bytes=32 time=9ms TTL=255
Reply from 192.168.2.1: bytes=32 time=1ms TTL=255

Ping statistics for 192.168.2.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milliseconds:
        Minimum = 0ms, Maximum = 9ms, Average = 3ms

C:\>
C:\>telnet 192.168.2.1
Trying 192.168.2.1 ...Open

[Connection to 192.168.2.1 closed by foreign host]
C:\>ssh -l admin 192.168.2.1

Password:
Password:
```

Рис. 7: Попытка подключения

Получила основные навыки по начальному конфигурированию оборудования Cisco.