

Лабораторная работа №2

Предварительная настройка оборудования Cisco

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Информация



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Получить основные навыки по начальному конфигурированию оборудования Cisco.

1. Сделать предварительную настройку маршрутизатора.
2. Сделать предварительную настройку коммутатора.

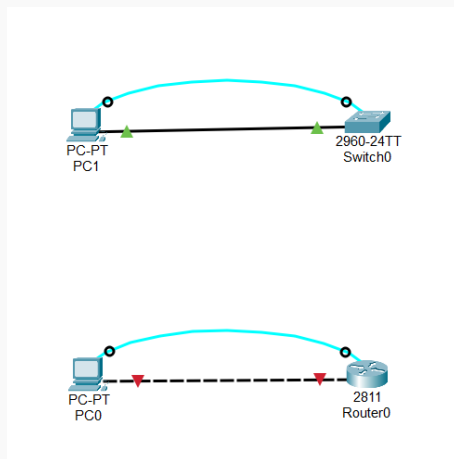


Рис. 1: Схема подключения оборудования для проведения его предварительной настройки

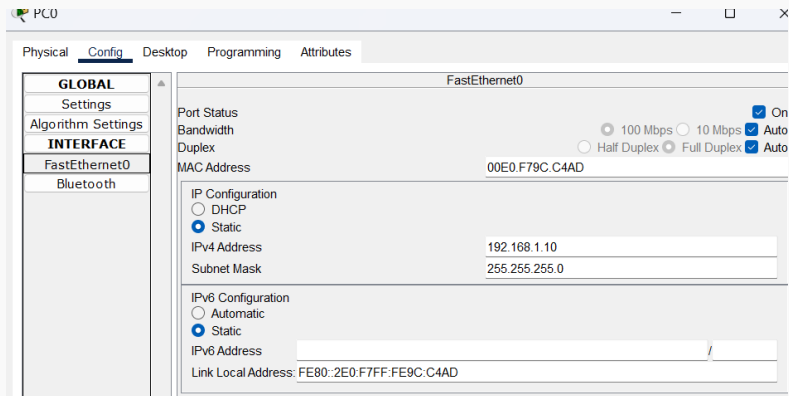


Рис. 2: Задание статического ip-адреса PC0

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname msk-donskaya-dvzambalova-gw-1
```

Рис. 3: Задание имени оборудованию

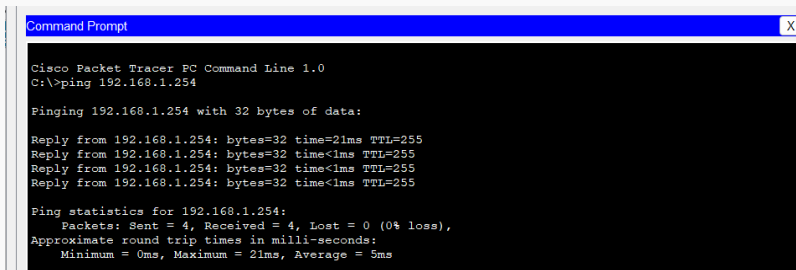

```
msk-donskaya-dvzambalova-gw-1(config)#interface f0/0
msk-donskaya-dvzambalova-gw-1(config-if)#no shutdown

msk-donskaya-dvzambalova-gw-1(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-donskaya-dvzambalova-gw-1(config-if)#ip address 192.168.1.254 255.255.255.0
```

Рис. 4: Задание интерфейсу Fast Ethernet с номером 0 ip-адреса



```
Command Prompt X

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.254

Pinging 192.168.1.254 with 32 bytes of data:

Reply from 192.168.1.254: bytes=32 time=21ms 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 = 21ms, Average = 5ms
```

Рис. 5: Проверка соединения с помощью команды ping

```
msk-donskaya-dvzambalova-gw-1(config)#line vty 0 4
msk-donskaya-dvzambalova-gw-1(config-line)#password cisco
msk-donskaya-dvzambalova-gw-1(config-line)#login
msk-donskaya-dvzambalova-gw-1(config-line)#exit
msk-donskaya-dvzambalova-gw-1(config)#line console 0
msk-donskaya-dvzambalova-gw-1(config-line)#password cisco
msk-donskaya-dvzambalova-gw-1(config-line)#login
msk-donskaya-dvzambalova-gw-1(config-line)#exit
msk-donskaya-dvzambalova-gw-1(config)#enable secret cisco
```

Рис. 6: Задание паролей

μακ-ρουακλῆς-μακρουρατοῦς-ἀμ-ι (conipā) # αεικλῆς βεσσημοιρ-ευσκλῆβτου
μακ-ρουακλῆς-μακρουρατοῦς-ἀμ-ι (conipā) # αεικλῆς βεσσημοιρ-ευσκλῆβτου

Рис. 8: Шифрование паролей

```
ip flow-export version 9
!  
!  
!  
!  
!  
!  
!  
line con 0  
  password 7 0822455D0A16  
  login  
!  
line aux 0  
!  
line vty 0 4  
  password 7 0822455D0A16  
  login  
  transport input ssh  
!  
!  
!  
end
```

Рис. 9: Просмотр зашифрованных паролей

```
ip access-list extended 100
deny ip 192.168.1.0/24 host 192.168.1.1
permit ip any any
```

Рис. 10: Задание доступа 1-го уровня по паролю пользователю admin

```
msk-donskaya-dvzambalova-gw-1(config)#ip domain-name donskeya.rudn.edu
msk-donskaya-dvzambalova-gw-1(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-dvzambalova-gw-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-donskaya-dvzambalova-gw-1(config)#line vty 0 4
*Mar 1 0:11:11.49: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:11:11.49: %SSH-5-ENABLED: SSH 1.5 has been enabled
msk-donskaya-dvzambalova-gw-1(config-line)#transport input ssh
```

Рис. 11: Настройка доступа через telnet и ssh

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

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

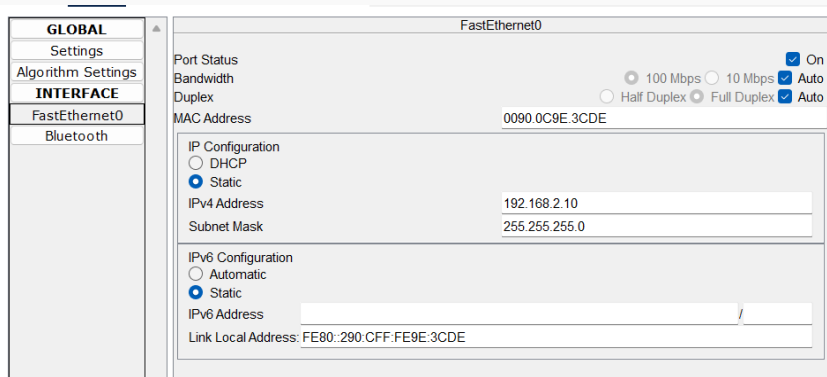
C:\>ssh -l admin 192.168.1.254

Password:

msk-donskaya-dvzambalova-gw-1>enable
Password:
msk-donskaya-dvzambalova-gw-1#exit

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

Рис. 12: Проверка работы доступа через telnet и ssh



GLOBAL

- Settings
- Algorithm Settings

INTERFACE

- FastEthernet0
- Bluetooth

FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0090.0C9E.3CDE

IP Configuration

- ☐ DHCP
- ☒ Static

IPv4 Address 192.168.2.10

Subnet Mask 255.255.255.0

IPv6 Configuration

- ☐ Automatic
- ☒ Static

IPv6 Address /

Link Local Address: FE80::290:CFF:FE9E:3CDE

Рис. 14: Задание статического ip-адреса PC2

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname msk-donskaya-dvzambalova-sw-1
msk-donskaya-dvzambalova-sw-1(config)#interface vlan2
msk-donskaya-dvzambalova-sw-1(config-if)#no shutdown
msk-donskaya-dvzambalova-sw-1(config-if)#ip address 192.168.2.1 255.255.255.0
```

Рис. 15: Задание имени оборудованию

```
msk-donskaya-dvzambalova-sw-1(config)#interface f0/1
msk-donskaya-dvzambalova-sw-1(config-if)#switchport mode access
                                     ^
% Invalid input detected at '^' marker.

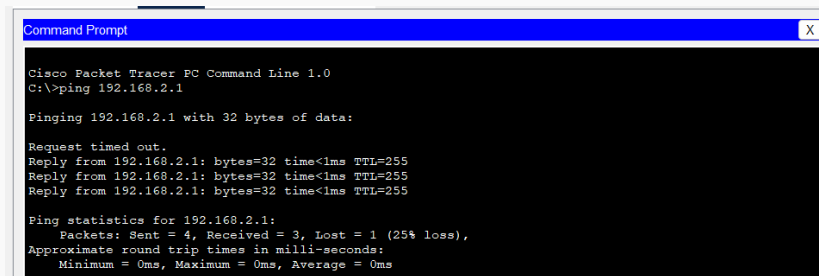
msk-donskaya-dvzambalova-sw-1(config-if)#switchport mode access
msk-donskaya-dvzambalova-sw-1(config-if)#switchport access vlan 2
% Access VLAN does not exist. Creating vlan 2
msk-donskaya-dvzambalova-sw-1(config-if)#
%LINK-5-CHANGED: Interface Vlan2, changed state to up

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

Рис. 16: Привязка интерфейса Fast Ethernet с номером 1 к vlan 2

```
msk-donskaya-dvzambalova-sw-1(config)#ip default-gateway 192.168.2.254
```

Рис. 17: Задание в качестве адреса шлюза адрес 192.168.2.254



The image shows a screenshot of a Command Prompt window titled "Command Prompt" with a close button (X) in the top right corner. The window has a black background with white text. The text inside the window shows the execution of a ping command in Cisco Packet Tracer. It starts with "Cisco Packet Tracer PC Command Line 1.0", followed by the command "C:\>ping 192.168.2.1". The output shows "Pinging 192.168.2.1 with 32 bytes of data:", followed by "Request timed out." and three successful replies: "Reply from 192.168.2.1: bytes=32 time<1ms TTL=255". Finally, it shows "Ping statistics for 192.168.2.1:" with "Packets: Sent = 4, Received = 3, Lost = 1 (25% loss)", "Approximate round trip times in milli-seconds:", and "Minimum = 0ms, Maximum = 0ms, Average = 0ms".

```
Command Prompt X

Cisco Packet Tracer PC Command Line 1.0
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 = 0ms, Average = 0ms
```

Рис. 18: Проверка соединения с помощью команды ping

```
msk-donskaya-dvzambalova-sw-1(config)#line vty 0 4
msk-donskaya-dvzambalova-sw-1(config-line)#password cisco
msk-donskaya-dvzambalova-sw-1(config-line)#login
msk-donskaya-dvzambalova-sw-1(config-line)#exit
msk-donskaya-dvzambalova-sw-1(config)#line console 0
msk-donskaya-dvzambalova-sw-1(config-line)#password cisco
msk-donskaya-dvzambalova-sw-1(config-line)#login
msk-donskaya-dvzambalova-sw-1(config-line)#exit
msk-donskaya-dvzambalova-sw-1(config)#enable secret cisco
msk-donskaya-dvzambalova-sw-1(config)#service password-encryption
```

Рис. 19: Задание и шифрование паролей

```
msk-donskaya-dvzambalova-sw-1(config)#username admin privilege 1 secret cisco
```

Рис. 20: Задание доступа 1-го уровня по паролю пользователю admin

```
msk-donskaya-dvzambalova-sw-1(config)#ip domain-name donsкаya.rudn.edu
msk-donskaya-dvzambalova-sw-1(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-dvzambalova-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-donskaya-dvzambalova-sw-1(config)#line vty 0 4
*Mar 1 0:21:38.7: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:21:38.7: %SSH-5-ENABLED: SSH 1.5 has been enabled
msk-donskaya-dvzambalova-sw-1(config-line)#transport input ssh
```

Рис. 21: Настройка доступа через telnet и ssh


```
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:

msk-donskaya-dvzambalova-sw-1>enable
Password:
msk-donskaya-dvzambalova-sw-1#exit

[Connection to 192.168.2.1 closed by foreign host]
C:\>|
```

Рис. 22: Проверка работы доступа через telnet и ssh

В процессе выполнения данной лабораторной работы я получила основные навыки по начальному конфигурированию оборудования Cisco.