

# Лабораторная работа № 2

Предварительная настройка оборудования Cisco

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## Вводная часть

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## Цели

Получить основные навыки по начальному конфигурированию оборудования Cisco.

## Задачи

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

## Выполнение лабораторной работы

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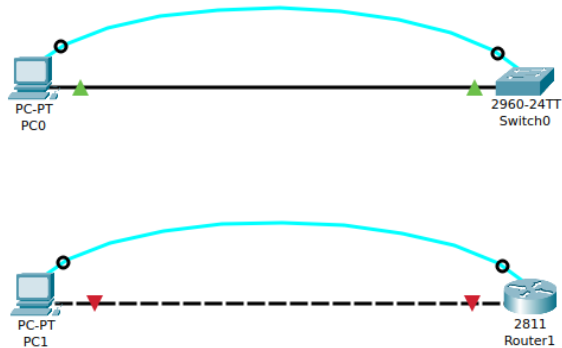


Рис. 1: Схема подключения оборудования для проведения его предварительной настройки

# Настройка маршрутизатора

```
Router2
Physical Config CLI Attributes
IOS Command Line Interface

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: no

Press RETURN to get started!

Router>enable
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname msk-donskaya-eademidova-gw-1
msk-donskaya-eademidova-gw-1(config)#interface fa0/0
msk-donskaya-eademidova-gw-1(config-if)#no shutdown

msk-donskaya-eademidova-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-eademidova-gw-1(config-if)#ip address 192.168.1.254 255.255.255.0
msk-donskaya-eademidova-gw-1(config-if)#line vty 0 4
msk-donskaya-eademidova-gw-1(config-line)#password cisco
msk-donskaya-eademidova-gw-1(config-line)#login
msk-donskaya-eademidova-gw-1(config-line)#^Z
msk-donskaya-eademidova-gw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-eademidova-gw-1#sonf t
^
% Invalid input detected at '^' marker.

msk-donskaya-eademidova-gw-1#config
msk-donskaya-eademidova-gw-1#configure ter
msk-donskaya-eademidova-gw-1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-eademidova-gw-1(config)#line console 0
^
% Invalid input detected at '^' marker.

msk-donskaya-eademidova-gw-1(config)#line console 0
msk-donskaya-eademidova-gw-1(config-line)#password cisco
msk-donskaya-eademidova-gw-1(config-line)#login
```

Рис. 2: Настройка маршрутизатора

# Настройка маршрутизатора

```
msk-donskaya-eademidova-gw-1(config-line)#login
msk-donskaya-eademidova-gw-1(config-line)#^Z
msk-donskaya-eademidova-gw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-eademidova-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-eademidova-gw-1(config)#enab
msk-donskaya-eademidova-gw-1(config)#enable secret cisco
msk-donskaya-eademidova-gw-1(config)#login
% Incomplete command.
msk-donskaya-eademidova-gw-1(config)#serv
msk-donskaya-eademidova-gw-1(config)#service pass
msk-donskaya-eademidova-gw-1(config)#service password-encryption
msk-donskaya-eademidova-gw-1(config)# username admin privilege 1 secret cisco
msk-donskaya-eademidova-gw-1(config)#ip domain-
msk-donskaya-eademidova-gw-1(config)#ip domain-na
msk-donskaya-eademidova-gw-1(config)#ip domain-name donsкаya ,rudn.edu
                                     ^
% Invalid input detected at '^' marker.

msk-donskaya-eademidova-gw-1(config)#ip domain-name donsкаya.rudn.edu
msk-donskaya-eademidova-gw-1(config)#crypto key generate rsa
                                     ^
% Invalid input detected at '^' marker.

msk-donskaya-eademidova-gw-1(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-eademidova-gw-1.donsкаya.rudn.edu
Choose the size of the key modulus in the range of 360 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

How many bits in the modulus [512]: 2048|
% Generating 2048 bit RSA keys, keys will be non-exportable...[OK]

msk-donskaya-eademidova-gw-1(config)#line vty 0 4
*Mar 1 0:16:52.93: %SSH-5-ENABLED: SSH 1.99 has been enabled
msk-donskaya-eademidova-gw-1(config-line)#transp
msk-donskaya-eademidova-gw-1(config-line)#transport input ssh
msk-donskaya-eademidova-gw-1(config-line)#^Z
msk-donskaya-eademidova-gw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-eademidova-gw-1#wr m
Building configuration...
[OK]
msk-donskaya-eademidova-gw-1#
```

Рис. 3: Настройка маршрутизатора

```
PC1
Physical  Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ipconfig
Invalid Command.

C:\>ipconfig

FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::2E0:BFFF:FE4D:DA73
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 192.168.1.10
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::
                                0.0.0.0

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .:
    IPv6 Address . . . . .:
    IPv4 Address . . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .:
                                0.0.0.0

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=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:\>
C:\>
```

Рис. 4: Проверка работоспособности соединения



```
C:\>
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

Password:

msk-donskaya-eademidova-gw-1>exit

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

User Access Verification

Password:
msk-donskaya-eademidova-gw-1>|
```

☐ Top

Рис. 5: Подключение к маршрутизатору

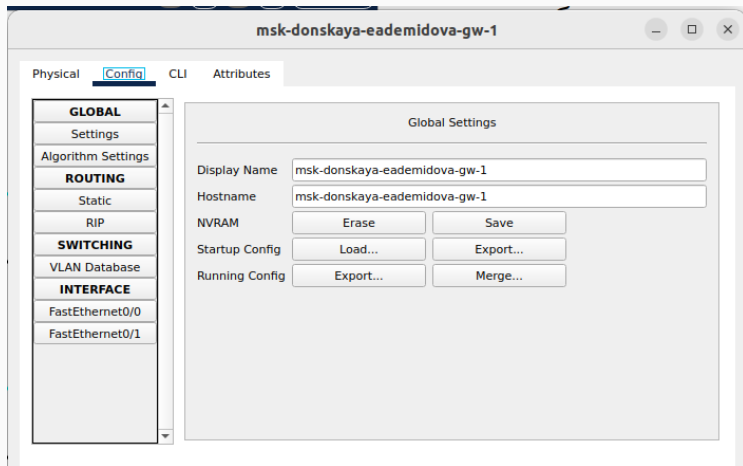


Рис. 6: Сохранение файла конфигураций для маршрутизатора

# Настройка коммутатора

```
Switch(config-if)#^Z
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname msk-donskaya-eadenidova-sw-1
msk-donskaya-eadenidova-sw-1(config)#interface vlan2
msk-donskaya-eadenidova-sw-1(config-if)#no shutdown
msk-donskaya-eadenidova-sw-1(config-if)#ip address 192.168.2.1 255.255.255.0
msk-donskaya-eadenidova-sw-1(config-if)#^Z
msk-donskaya-eadenidova-sw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-eadenidova-sw-1#cong t
^
% Invalid input detected at '^' marker.

msk-donskaya-eadenidova-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-eadenidova-sw-1(config)# interface f0/1
msk-donskaya-eadenidova-sw-1(config-if)#switchport mode access
msk-donskaya-eadenidova-sw-1(config-if)# switchport access vlan 2
% Access VLAN does not exist. Creating vlan 2
msk-donskaya-eadenidova-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

msk-donskaya-eadenidova-sw-1(config-if)#^Z
msk-donskaya-eadenidova-sw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-eadenidova-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-eadenidova-sw-1(config)#ip default gateway 192.168.2.254
^
% Invalid input detected at '^' marker.

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

Рис. 7: Настройка коммутатора

# Настройка коммутатора



```
Switch0
Physical Config CLI Attributes
IOS Command Line Interface
msk-donskaya-easemidova-sw-1(config)#line vty 0 4
msk-donskaya-easemidova-sw-1(config-line)#password cisco
msk-donskaya-easemidova-sw-1(config-line)#login
msk-donskaya-easemidova-sw-1(config-line)#line console 0
msk-donskaya-easemidova-sw-1(config-line)#password cisco
msk-donskaya-easemidova-sw-1(config-line)#login
msk-donskaya-easemidova-sw-1(config-line)#^Z
msk-donskaya-easemidova-sw-1^
NVS-S-CONF10-1: Configured from console by console

msk-donskaya-easemidova-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-easemidova-sw-1(config)#ena
msk-donskaya-easemidova-sw-1(config)#enable secret cisco
msk-donskaya-easemidova-sw-1(config)#login
msk-donskaya-easemidova-sw-1(config)#^
% Invalid input detected at '^' marker.

msk-donskaya-easemidova-sw-1(config)#service password-encryption
msk-donskaya-easemidova-sw-1(config)#^
% Invalid input detected at '^' marker.

msk-donskaya-easemidova-sw-1(config)#service password-encryption
msk-donskaya-easemidova-sw-1(config)#username admin privilege 1 secret cisco
msk-donskaya-easemidova-sw-1(config)#ip domain name donskeya.rudn.edu
msk-donskaya-easemidova-sw-1(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-easemidova-sw-1.donskeya.rudn.edu
Choose the size of the key modulus in the range of 384 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

How many bits in the modulus [512]: 2048
% Generating 2048 bit RSA keys, keys will be non-exportable...[OK]

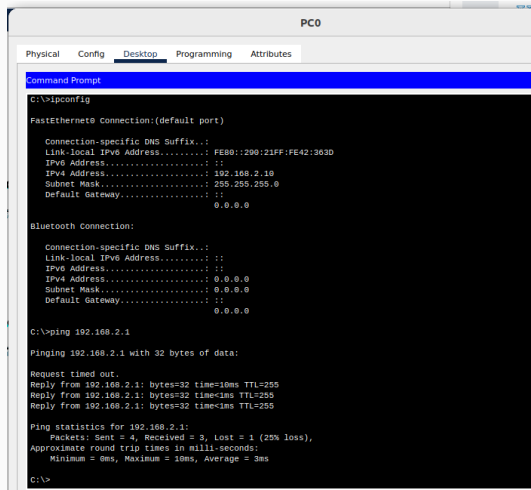
msk-donskaya-easemidova-sw-1(config)#line vty 0 4
msk-donskaya-easemidova-sw-1(config-line)#^
% Invalid input detected at '^' marker.

msk-donskaya-easemidova-sw-1(config-line)#transport input ssh
msk-donskaya-easemidova-sw-1(config-line)#^
% Invalid input detected at '^' marker.

msk-donskaya-easemidova-sw-1(config-line)#^Z
msk-donskaya-easemidova-sw-1^
NVS-S-CONF10-1: Configured from console by console

msk-donskaya-easemidova-sw-1#wr m
Building configuration...
[OK]
msk-donskaya-easemidova-sw-1#
```

Рис. 8: Настройка коммутатора



The screenshot shows a virtual PC0 window with tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, displaying a Command Prompt. The user has entered the command 'ipconfig', which shows the configuration for the FastEthernet0 interface (IPv4: 192.168.2.10) and the Bluetooth interface (all zeros). Subsequently, the user entered 'ping 192.168.2.1', resulting in a 'Request timed out' message and a summary of ping statistics for 192.168.2.1, indicating a 25% packet loss.

```
PC0
Physical Config Desktop Programming Attributes
Command Prompt
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::290:21FF:FE42:363D
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 192.168.2.10
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::
                                0.0.0.0

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::
                                0.0.0.0

C:\>ping 192.168.2.1

Pinging 192.168.2.1 with 32 bytes of data:

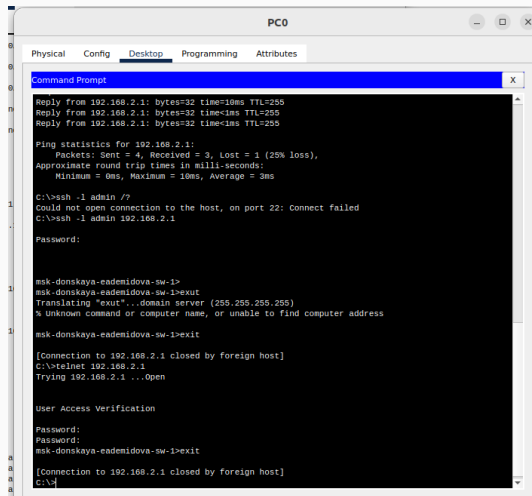
Request timed out.
Reply from 192.168.2.1: bytes=32 time=10ms TTL=255
Reply from 192.168.2.1: bytes=32 time<1ms TTL=255
Reply from 192.168.2.1: bytes=32 time<1ms TTL=255

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 = 10ms, Average = 3ms

C:\>
```

Рис. 9: Проверка работоспособности соединения

# Настройка коммутатора



The screenshot shows a PC window titled "PC0" with tabs for Physical, Config, Desktop, Programming, and Attributes. The "Desktop" tab is active, displaying a Command Prompt window. The Command Prompt shows the results of a ping command to 192.168.2.1, which shows 25% packet loss. It then shows failed attempts to connect via SSH and Telnet to the same IP address.

```
PC0
Physical Config Desktop Programming Attributes
Command Prompt
Reply from 192.168.2.1: bytes=32 time=10ms 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 = 10ms, Average = 3ms

C:\>ssh -l admin /?
Could not open connection to the host, on port 22: Connect failed
C:\>ssh -l admin 192.168.2.1

Password:

msk-donskaya-eademidova-sw-1>
msk-donskaya-eademidova-sw-1>exit
Translating "exit"...domain server (255.255.255.255)
% Unknown command or computer name, or unable to find computer address

msk-donskaya-eademidova-sw-1>exit

[Connection to 192.168.2.1 closed by foreign host]
C:\>telnet 192.168.2.1
Trying 192.168.2.1 ...Open

User Access Verification

Password:
Password:
msk-donskaya-eademidova-sw-1>exit

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

Рис. 10: Подключение к маршрутизатору

# Настройка коммутатора

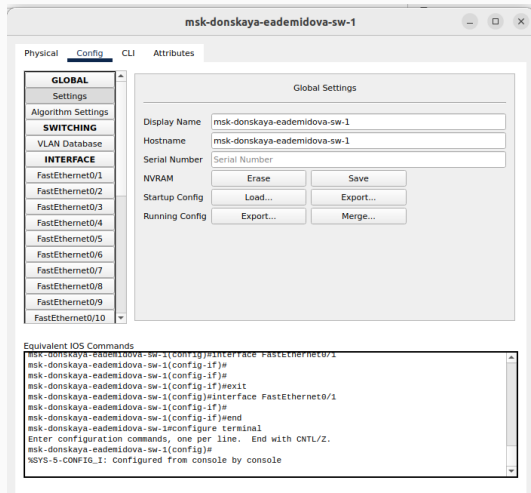


Рис. 11: Сохранение файла конфигураций для маршрутизатора

## Выводы

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В результате выполнения лабораторной работы получили основные навыки по начальному конфигурированию оборудования Cisco.