

# Project 2

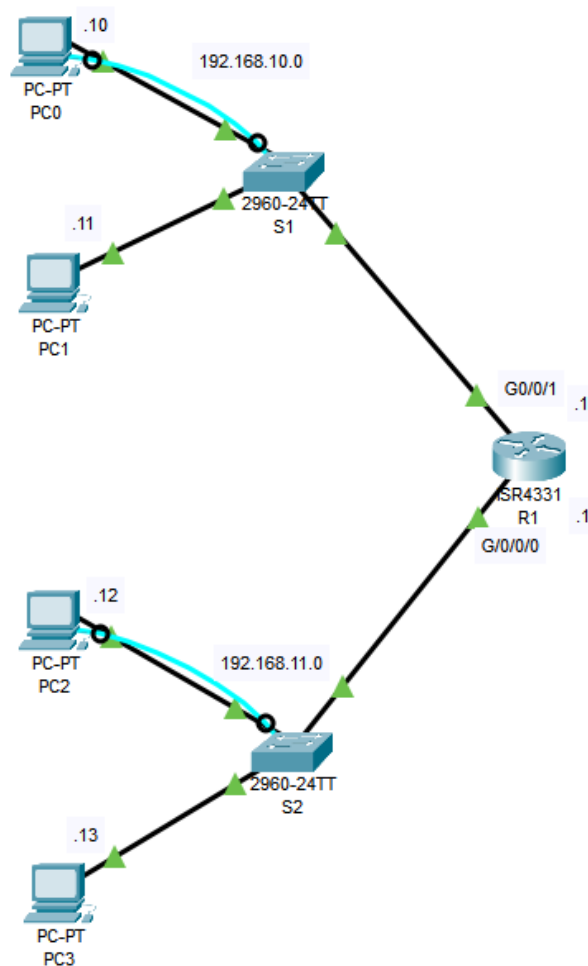
## Basic configuration of the router

### Project description:

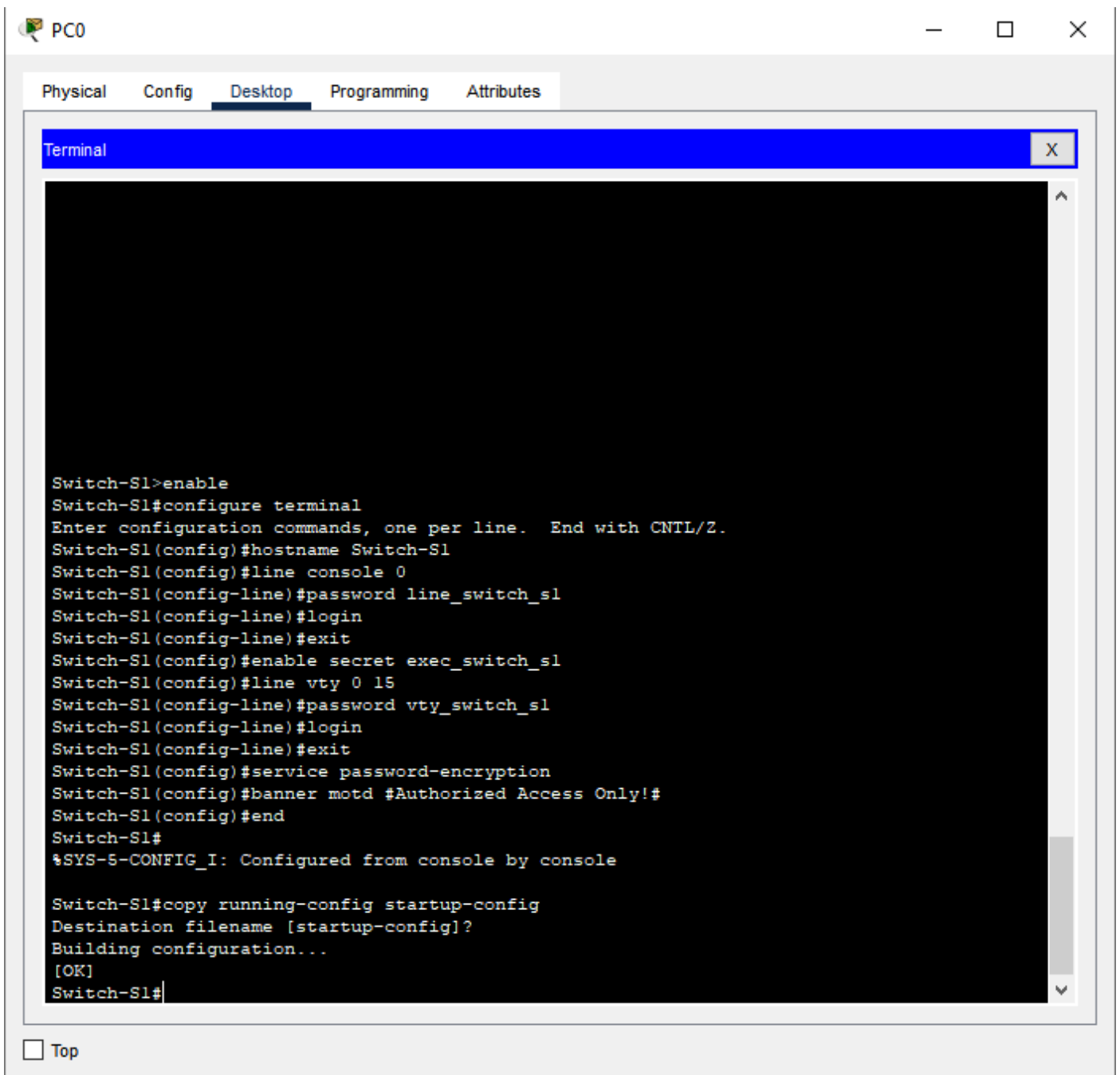
Create LAN and perform basic configuration of router

### Steps:

- Create a topology of LAN:



- Basic Switch configuration:
  1. Assign a device name.
  2. Secure user EXEC mode access.
  3. Secure privileged EXEC mode access.
  4. Secure VTY access.
  5. Encrypt all plaintext passwords.
  6. Display a login banner.
  7. Save Configuration



The screenshot shows a PC0 window with a terminal application open. The terminal displays a series of commands and their outputs for configuring a switch named Switch-S1. The commands include enabling the terminal, configuring the hostname, setting console and VTY passwords, enabling secret EXEC mode access, setting a login banner, and saving the configuration to the startup-config file.

```
Switch-S1>enable
Switch-S1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch-S1(config)#hostname Switch-S1
Switch-S1(config)#line console 0
Switch-S1(config-line)#password line_switch_s1
Switch-S1(config-line)#login
Switch-S1(config-line)#exit
Switch-S1(config)#enable secret exec_switch_s1
Switch-S1(config)#line vty 0 15
Switch-S1(config-line)#password vty_switch_s1
Switch-S1(config-line)#login
Switch-S1(config-line)#exit
Switch-S1(config)#service password-encryption
Switch-S1(config)#banner motd #Authorized Access Only!#
Switch-S1(config)#end
Switch-S1#
%SYS-5-CONFIG_I: Configured from console by console

Switch-S1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Switch-S1#
```

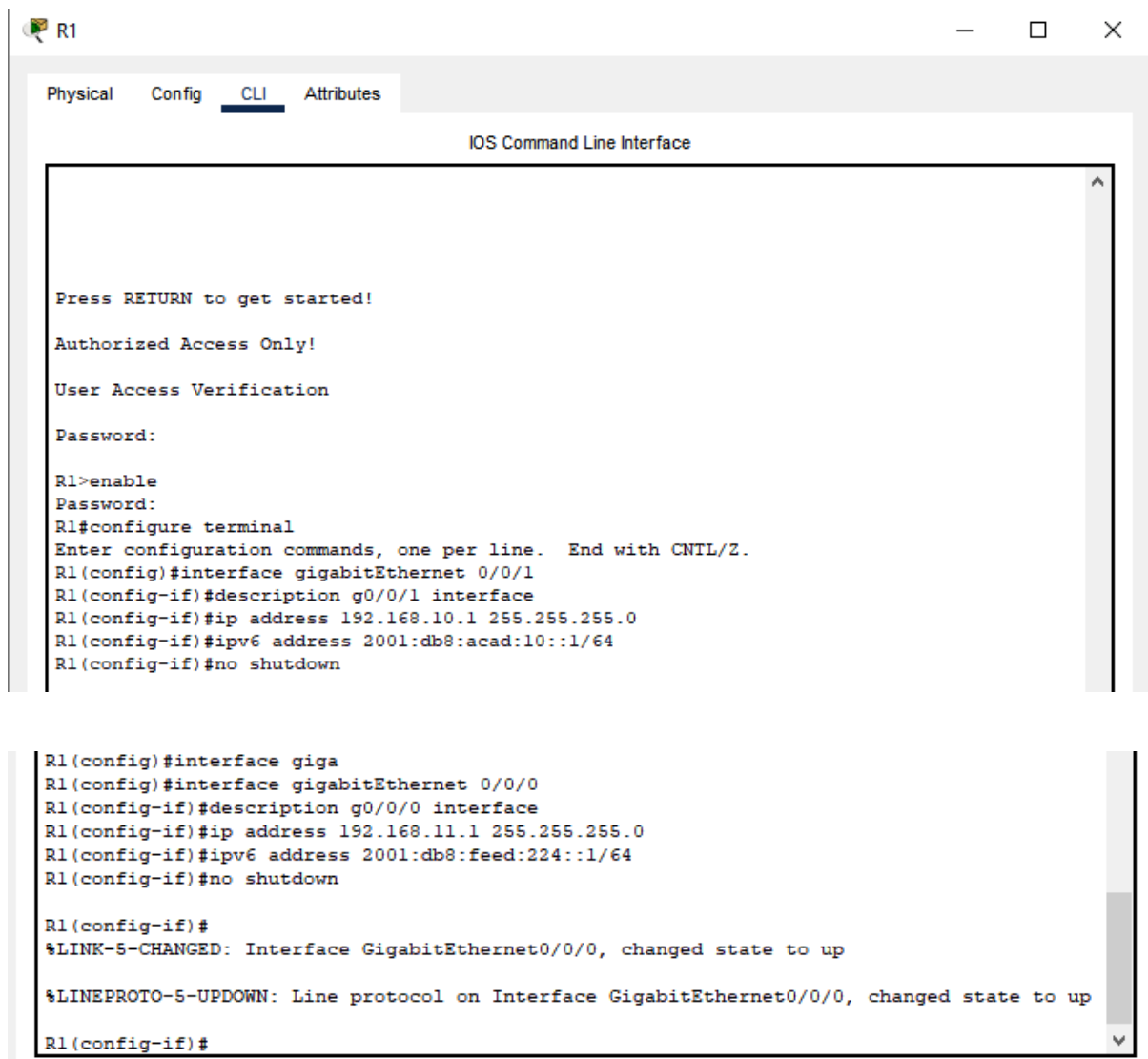
At the bottom left of the window, there is a checkbox labeled "Top".

- Configure the basic configuration of router:

1. Configure the device name.
2. Secure the privileged EXEC mode.
3. Secure and enable remote SSH access.
4. Secure all plaintext passwords.
5. Provide legal notification.

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R1
R1(config)#enable secret firstlan_r1
R1(config)#line console 0
R1(config-line)#password secretline_r1
R1(config-line)#login
R1(config-line)#exit
R1(config)#line vty 0 4
R1(config-line)#password vtyline_r1
R1(config-line)#login
R1(config-line)#transport input ssh telnet
R1(config-line)#transport input ssh
R1(config-line)#exit
R1(config)#service password-encryption
R1(config)#banner motd #Authorized Access Only!#
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console
R1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R1#
```

- Configure the router interfaces:



```

R1
Physical  Config  CLI  Attributes

IOS Command Line Interface

Press RETURN to get started!

Authorized Access Only!

User Access Verification

Password:

R1>enable
Password:
R1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#interface gigabitEthernet 0/0/1
R1(config-if)#description g0/0/1 interface
R1(config-if)#ip address 192.168.10.1 255.255.255.0
R1(config-if)#ipv6 address 2001:db8:acad:10::1/64
R1(config-if)#no shutdown

R1(config)#interface giga
R1(config)#interface gigabitEthernet 0/0/0
R1(config-if)#description g0/0/0 interface
R1(config-if)#ip address 192.168.11.1 255.255.255.0
R1(config-if)#ipv6 address 2001:db8:feed:224::1/64
R1(config-if)#no shutdown

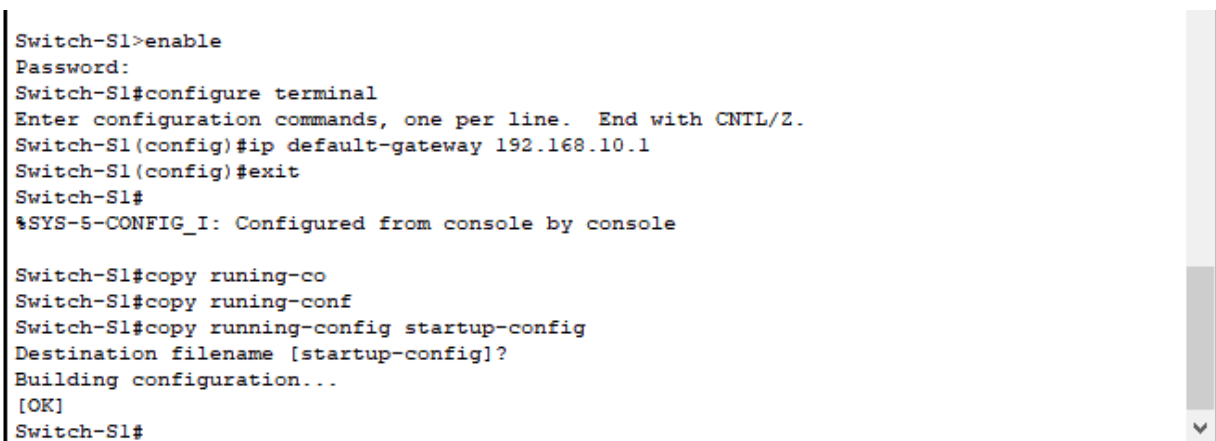
R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed state to up

R1(config-if)#

```

- Configuring the default gateway in Switches:



```

Switch-S1>enable
Password:
Switch-S1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch-S1(config)#ip default-gateway 192.168.10.1
Switch-S1(config)#exit
Switch-S1#
%SYS-5-CONFIG_I: Configured from console by console

Switch-S1#copy runing-co
Switch-S1#copy runing-conf
Switch-S1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Switch-S1#

```

Press RETURN to get started!

Authorized Access Only!

User Access Verification

Password:

Switch-S2>enable

Password:

Switch-S2#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Switch-S2(config)#ip default-gateway 192.168.11.1

Switch-S2(config)#exit

Switch-S2#

%SYS-5-CONFIG\_I: Configured from console by console

Switch-S2#cop running-config startup-config

Destination filename [startup-config]?

Building configuration...

[OK]

Switch-S2#

- Configure all ip addresses on hosts:
  1. IPv4 host
  2. Subnet Mask
  3. IPv4 default-gateway

PC0

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.10.10

Subnet Mask 255.255.255.0

Default Gateway 192.168.10.1

DNS Server 0.0.0.0

PC2

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

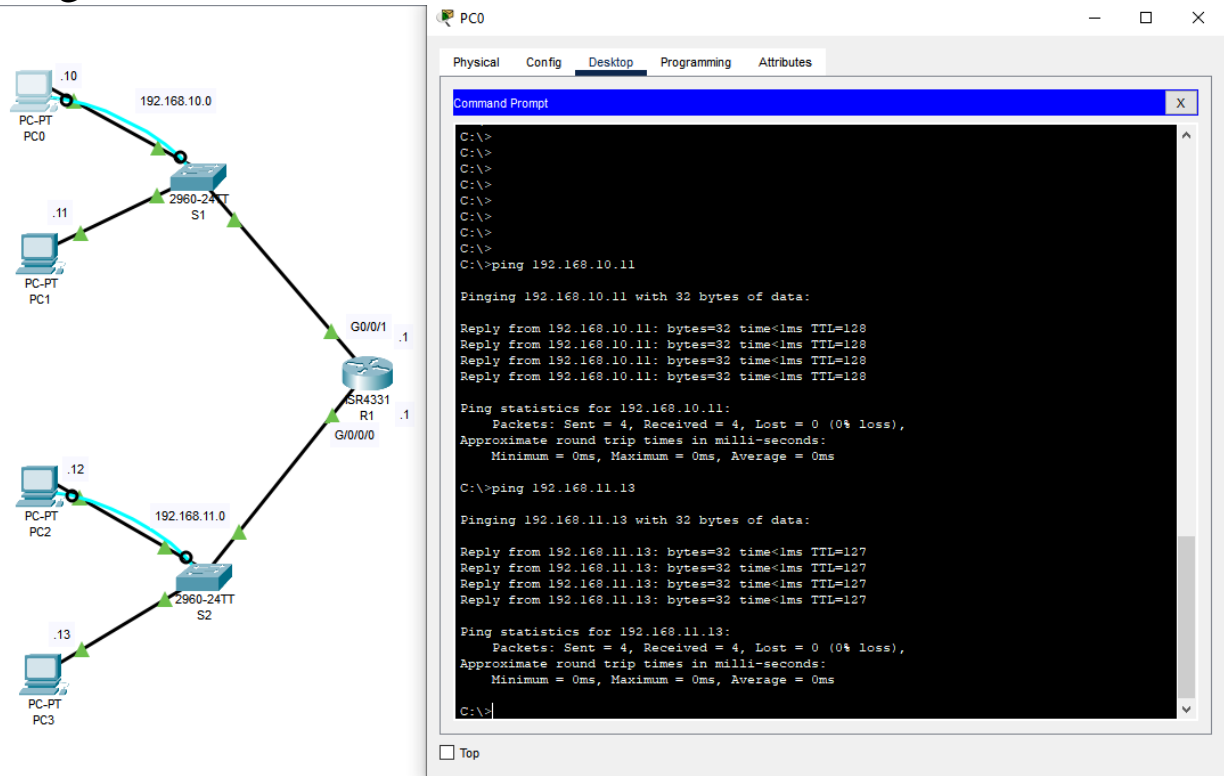
IPv4 Address 192.168.11.12

Subnet Mask 255.255.255.0

Default Gateway 192.168.11.1

DNS Server 0.0.0.0

- Check the sending of packets across the entire network using the Ping command:



```
C:\>ping 192.168.10.11

Pinging 192.168.10.11 with 32 bytes of data:

Reply from 192.168.10.11: bytes=32 time<1ms TTL=128
Reply from 192.168.10.11: bytes=32 time<1ms TTL=128
Reply from 192.168.10.11: bytes=32 time<1ms TTL=128
Reply from 192.168.10.11: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.10.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.11.13

Pinging 192.168.11.13 with 32 bytes of data:

Reply from 192.168.11.13: bytes=32 time<1ms TTL=127
Reply from 192.168.11.13: bytes=32 time<1ms TTL=127
Reply from 192.168.11.13: bytes=32 time<1ms TTL=127
Reply from 192.168.11.13: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.11.13:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

## Summary:

Switches are configured, routers are configured. The network has been created. Packets are successfully moved through the router over the network.