INTRODUCTION TO ROUTER CONFIGURATIONS

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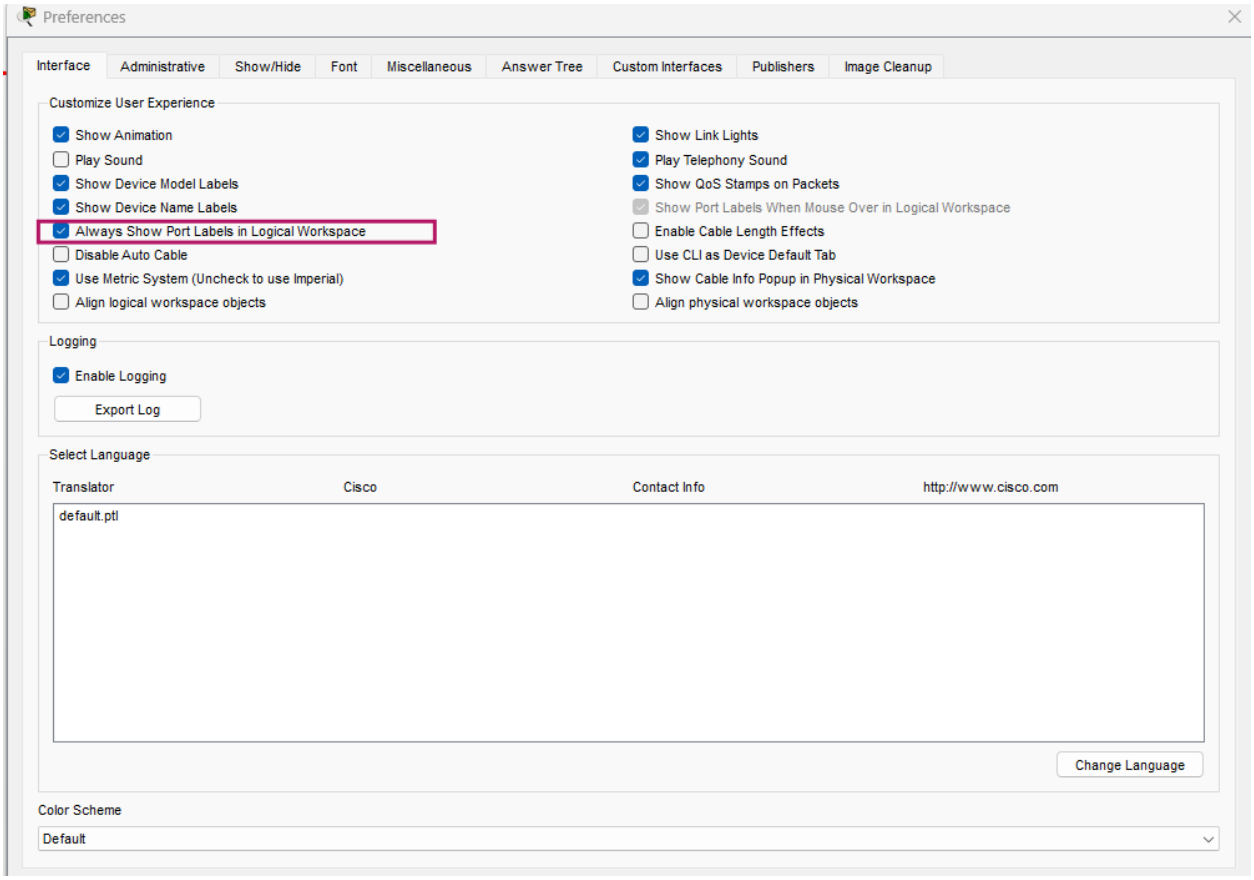
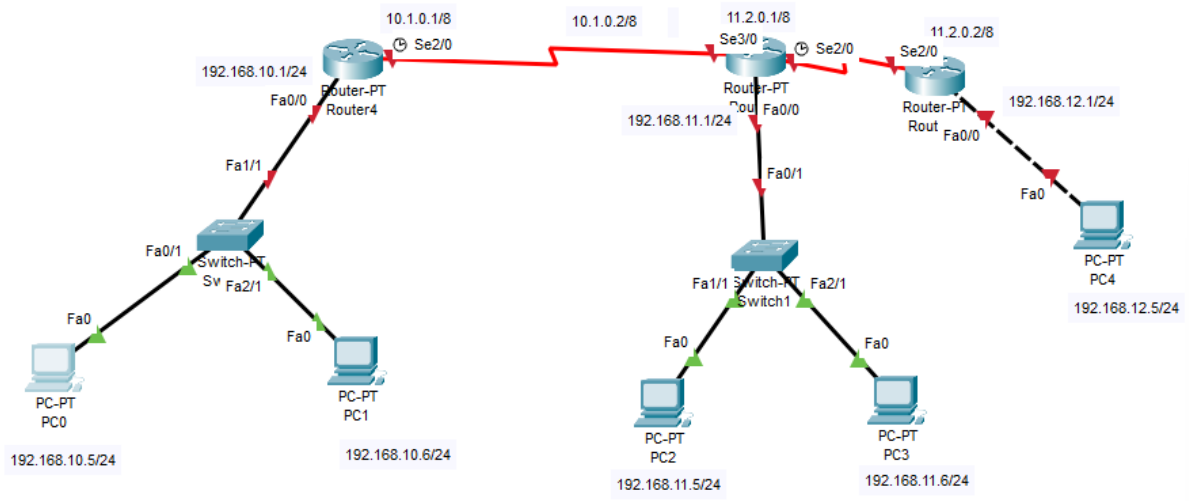
Contents

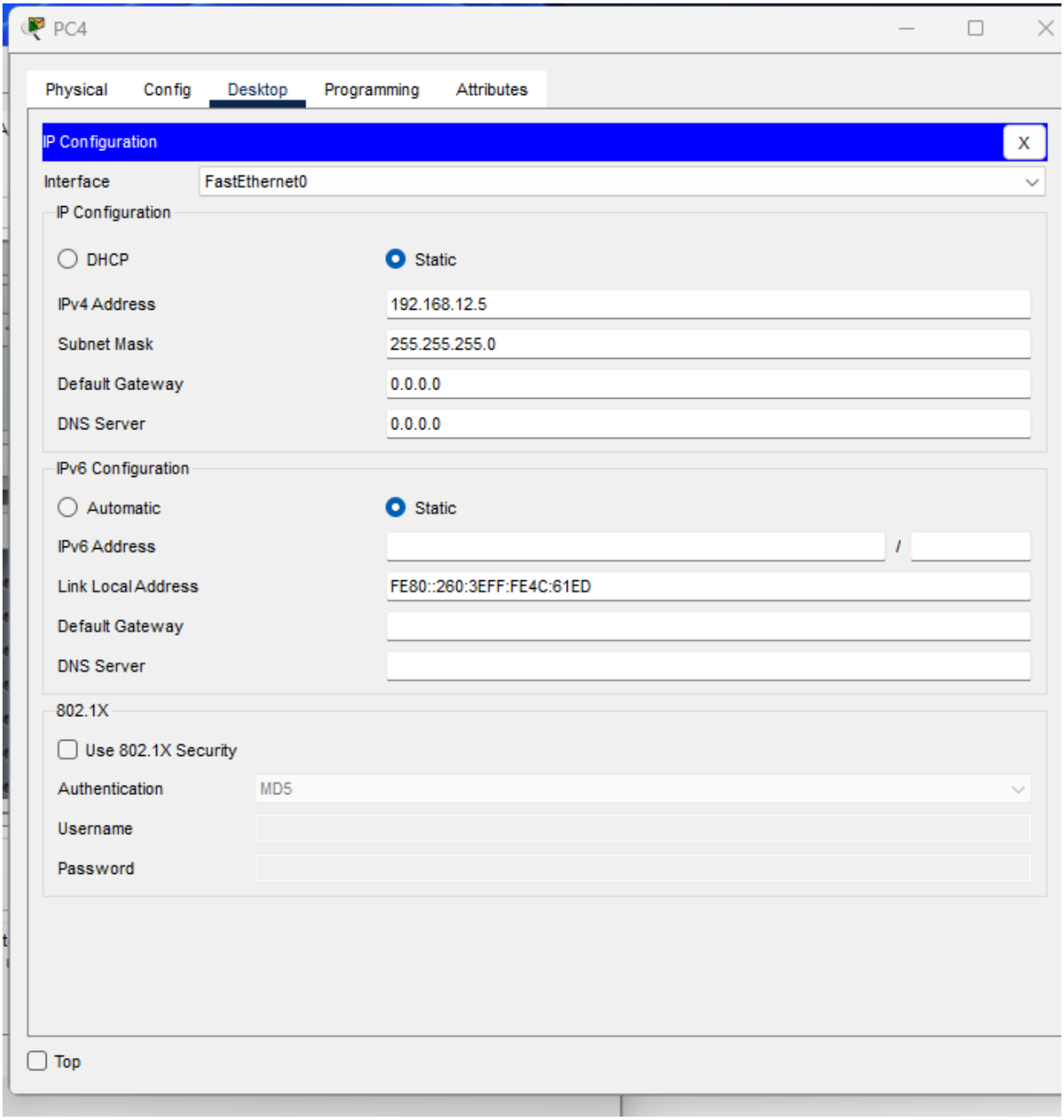
Set a LAN

- 1st step is you have to turn on always show port labels in logical workspace checkbox
    - To that go to Optiona → Preference → turn on always show port labels in logical workspace checkbox




10.1.0.1/8
Se2/0
10.1.0.2/8
11.2.0.1/8
Se3/0
Se2/0
11.2.0.2/8
Se2/0
192.168.10.1/24
Router-PT
Router4
Fa0/0
Router-PT
Fa0/0
192.168.11.1/24
Router-PT
Fa0/0
192.168.12.1/24
Fa1/1
Fa0/1
Fa0
PC-PT
PC4
192.168.12.5/24
Fa0/1
Switch-PT
Fa2/1
Fa1/1
Switch-PT
Switch1
Fa2/1
Fa0
Fa0
Fa0
Fa0
PC-PT
PC0
PC-PT
PC1
PC-PT
PC2
PC-PT
PC3
192.168.10.5/24
192.168.10.6/24
192.168.11.5/24
192.168.11.6/24

- Check whether all the PCs are configured



- Check whether all the routers are configured

Router configuration

- In CLI

1. To log as Privileged mode

Command : **en**

2. To log as global configuration mode

Command : **config t**

3. Add the hostname

Command : **hostname <name>**

Ex: hostname router5

4. Go inside the interface

Command : **interface <fa0/0 or whatever interface>**

5. Give the ip address and the subnetmask

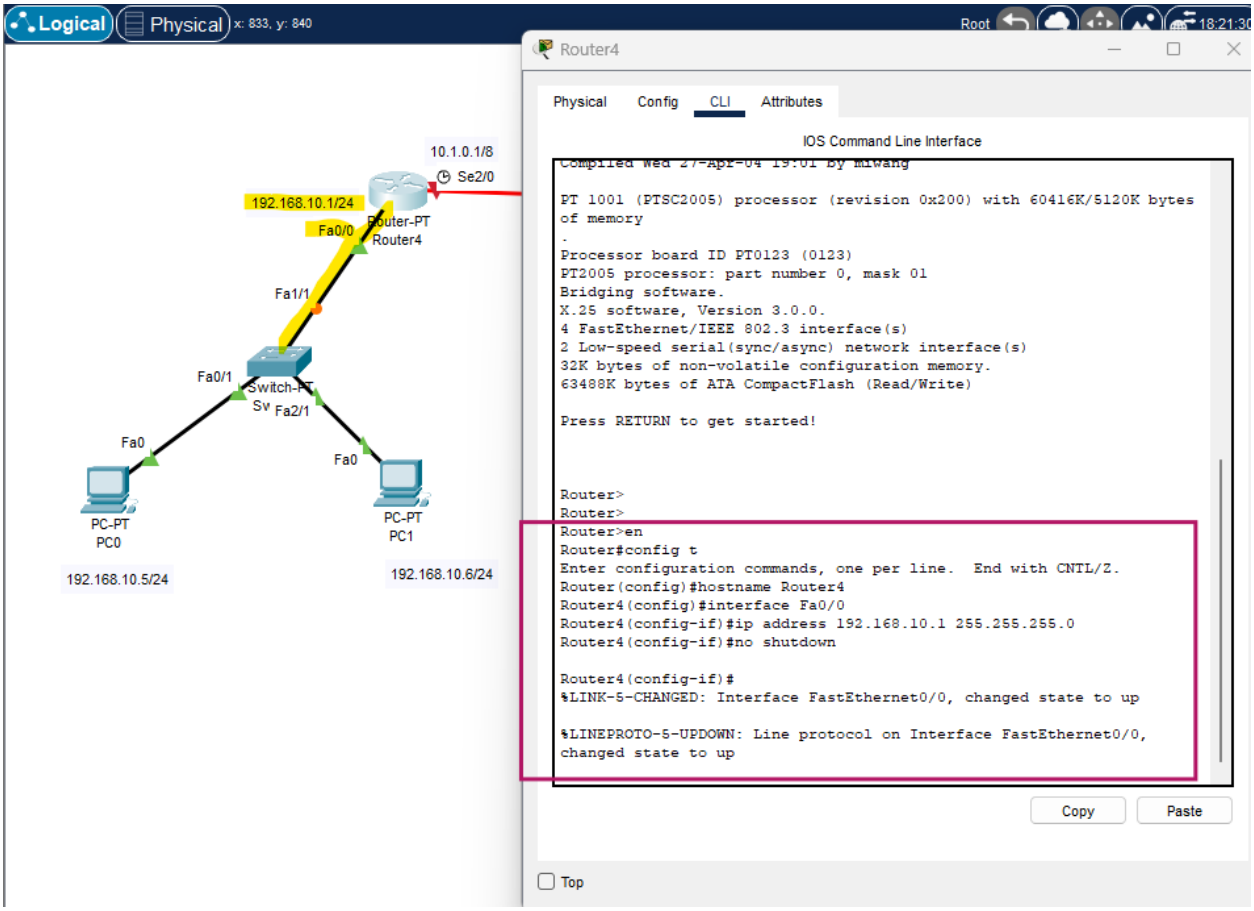
Command **: ip address <ip address> <subnet mask>**

6. Stay in up

Command : **no shutdown**

<u>Let's configure the router4</u>

Go to router which is named Router4



- Go to router5

```
Router>
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname Router5
Router5(config)#interface se3/0
Router5(config-if)#ip address 10.1.0.2 255.0.0.0
Router5(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial3/0, changed state to down
Router5(config-if)#exit
Router5(config)#interface se2/0
Router5(config-if)#ip adrdress 11.2.0.1 255.0.0.0
                   ^
% Invalid input detected at '^' marker.

Router5(config-if)#ip address 11.2.0.1 255.0.0.0
Router5(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router5(config-if)#
```

- Again go to router4

```
Router4(config)#
Router4(config)#interface se2/0
Router4(config-if)#ip address 10.1.0.1 255.0.0.0
Router4(config-if)#no shutdown

Router4(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
```

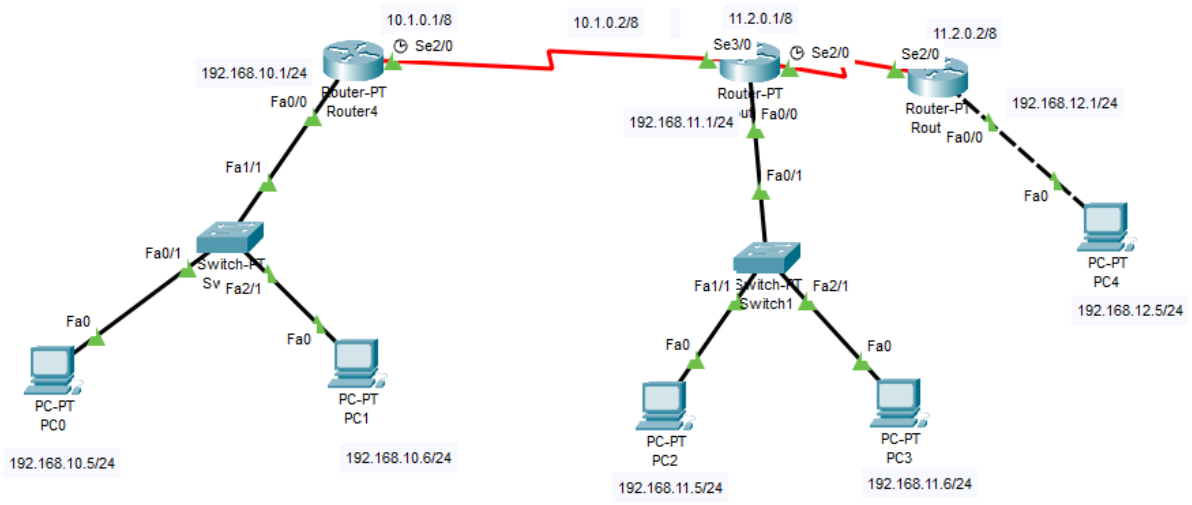
```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router4(config-if)#
Router4(config-if)#
Router4(config-if)#
Router4(config-if)#exit
Router4(config)#interface fa0/0
Router4(config-if)#ip address 192.168.11.1 255.255.255.0
Router4(config-if)#no shutdown
Router4(config-if)#
```

- And on port status

- Go to router0

```
Router0>
Router0>en
Router0#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router0(config)#interface se2/0
Router0(config-if)#ip address 11.2.0.2 255.0.0.0
Router0(config-if)#no shutdown

Router0(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router0(config-if)#exir
                    ^
% Invalid input detected at '^' marker.

Router0(config-if)#exit
Router0(config)#interface fa0/0
Router0(config-if)#ip address 192.168.12.1 255.255.255.0
Router0(config-if)#no shutdown

Router0(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
```

- Now all are working properly



Note : Using the Help Command in Cisco CLI

1. Basic Help Command

- Use ? to view all supported commands in the current mode.

Command : Router> **?**

*Displays a list of available commands in **User EXEC Mode**.

2. Finding Command Options

- Use ? after a command to see available options.

Command : Router> **show ?**

- Lists all possible parameters for the show command.

3. Partial Command Assistance

- Type the beginning of a command followed by ? to see valid completions.

Command : Router> **sh?**

- Suggests possible commands starting with "sh".

4. Context-Sensitive Help

- Use ? at any point to get assistance with syntax and parameters.
- Helps identify correct commands and prevent errors.

Key Commands in User EXEC Mode

- enable → Enter privileged EXEC mode.
- disable → Return to user EXEC mode.
- connect → Open a terminal session.
- exit/logout → Exit from the session.
- disconnect → Terminate a network connection.

Importance of the Help Command

- A **powerful learning tool** for configuring network devices.
- Helps discover available commands and syntax easily.

Set password to router

Set a password for privileged mode.

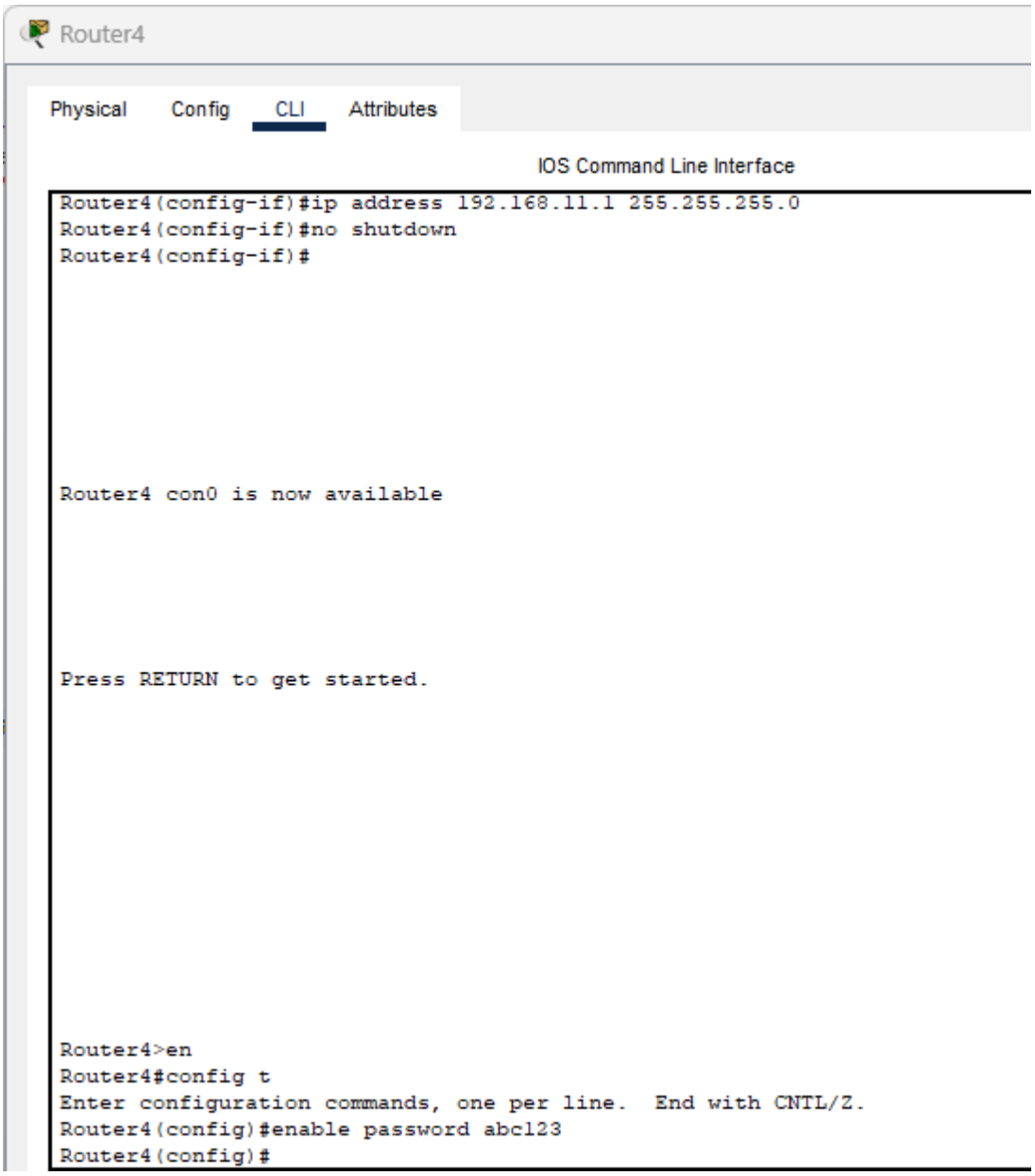
- For configuration you have to stay in global configuration mode

Step 1
Go to router 4

Step 2
Go to privilege mode
Command : **en**

Step 3
Go to global configuration mode
Command : **config t**

Step 4
Set password
Command: **enable password <password you wand>**



I gave abc123 for this testing purpose.

Set a secret for privileged mode.

Step 1
Go to router 4

Step 2
Go to privilege mode
Command : **en**

Step 3
Go to global configuration mode
Command : **config t**

Step 4
Set password
Command: **enable secret <password you wand>**

```
Router4#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router4(config)#enable secret secret123
Router4(config)#
```

I gave secret123 for this testing purpose.

NOTE

**** Privileged mode password can be viewed in a plain text and the secret password is encrypted.**

**** if both are configured secret password has more priority.**

Set a message-of-the-day banner for the router.

- You have to in global configuration mode and use your banner inside of @@
  Command : **banner motd @ <banner you want> @**

```
Router4(config)#banner motd @ ***this is my banner***
Enter TEXT message.  End with the character '@'.
banner motd @ ***this is my banner*** @

Router4(config)#
```

- When you come to the user mode you can see the banner

```
 ***this is my banner***
banner motd

Router4>
```

To remove privilege level password

- Stay in the global configuration mode
  Command : **no enable password**

```
Malabe(config)#no enable password
Malabe(config)#
```

save the running-config to startup-config

- You have to be in the privilege mode

1. go to privilege mode

command : **en**

2. To save the running-config to startup-config

command: **copy running-config startup-config**

```
Router4>en
Password:
Password:
Router4#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Router4#
```

What is the difference between running-config and startup-config?

When you immediately type a command in the CLI it will be immediately save in the running configuration. The running configuration is residing inside the device's RAM. When the device loss the power all the commands stored will be erased.

Startup – configuration is stored inside the NVRAM. NVRAM is the non-volatile memory of the device. All the configuration changes are saved in the start-up configuration even when its loss the power.

Why do you have to save the running-config to startup-config?

If there are any power losses or a reboot, everything stored inside the RAM will be loss. To store the running-config file permanently it should be copied to the NVRAM.

Assign clock rate

- You need to assign clock rate to the DCE in a serial link.
- There will be a clock sign in the one end of a serial link.
- Generally DCE = left side
- DCTE = right side
- Both side must has same number

To assign clock rate

1. Go to interface

Command : **Interface se2/0**

2. Set clock rate

Command : **Clock rate <rate ek like 64000>**

3. Say stay in on

Command : **No shutdown**

```
Router4>
Router4>en
Password:
Password:
Router4#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router4(config)#interface se2/0
Router4(config-if)#ip address 10.1.0.1 255.0.0.0
Router4(config-if)#clock rate 64000
Router4(config-if)#
```

- Do it for block clock sign sides

```
Router5>
Router5>
Router5>en
Router5#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router5(config)#interface se2/0
Router5(config-if)#clock rate 64000
Router5(config-if)#no shutdown
```

Verify the connectivity within the LANs.

Ping <ip address>

```
Pinging 192.168.10.6 with 32 bytes of data:

Reply from 192.168.10.6: bytes=32 time<1ms TTL=128
Reply from 192.168.10.6: bytes=32 time<1ms TTL=128
Reply from 192.168.10.6: bytes=32 time<1ms TTL=128
Reply from 192.168.10.6: bytes=32 time=9ms TTL=128

Ping statistics for 192.168.10.6:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 9ms, Average = 2ms

C:\>
```

To see routing table

- In privilege mode

Command : **show ip route**