



**FACULTY OF INFORMATION TECHNOLOGY
DEPARTMENT OF NETWORKS AND INFORMATION SYSTEMS**

CHAPTER 1

Practice

Main Objectives

- A brief look at the Cisco Packet Tracer tool
- Introduction to Configuration Wizard
- Building network topology
- Configure the device's IP address
- Using the "Ping" command

CONTENTS



- **Part 1:** Cisco Packet Tracer Overview
- **Part 2:** Equipment in the lab
- **Part 3:** Practice

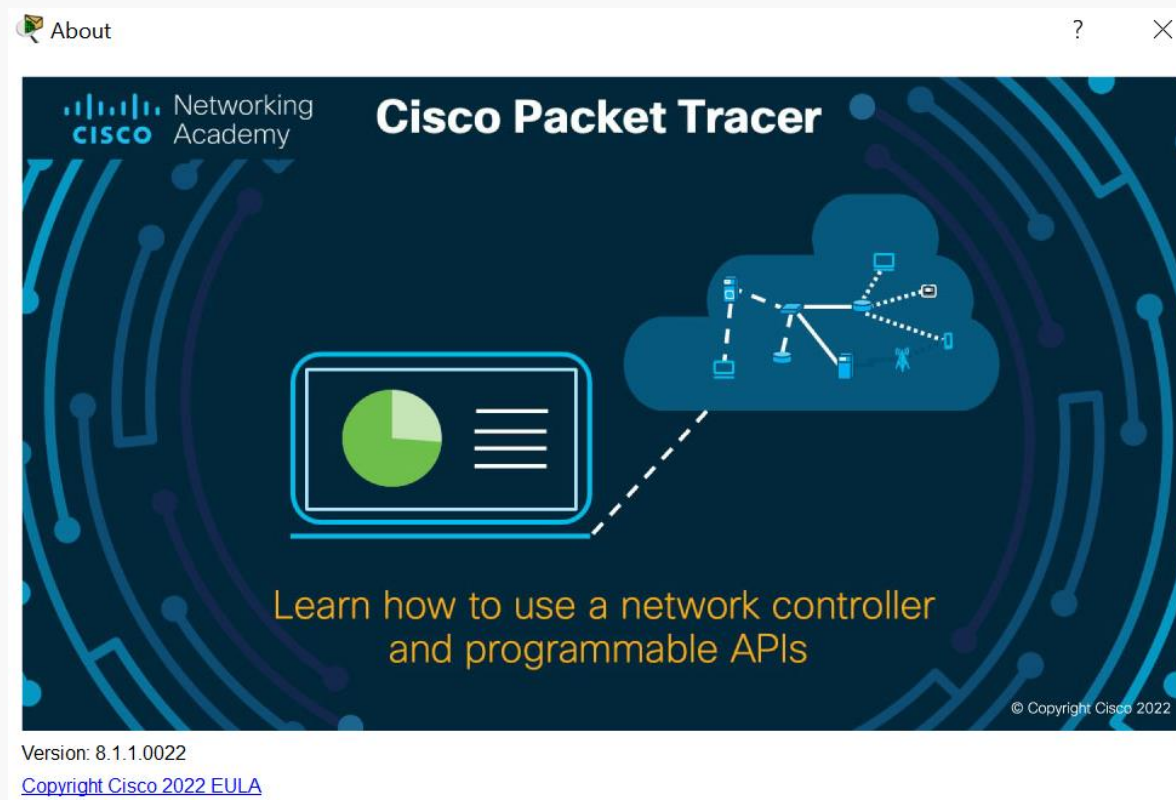
Cisco Packet Tracer Overview



Packet Tracer - What is it?

Packet Tracer:

- a networking technology teaching and learning software developed by Cisco Networking Academy
- used to illustrate how computer networks work



Cisco Packet Tracer Overview

Packet Tracer - Key Features

Main features:

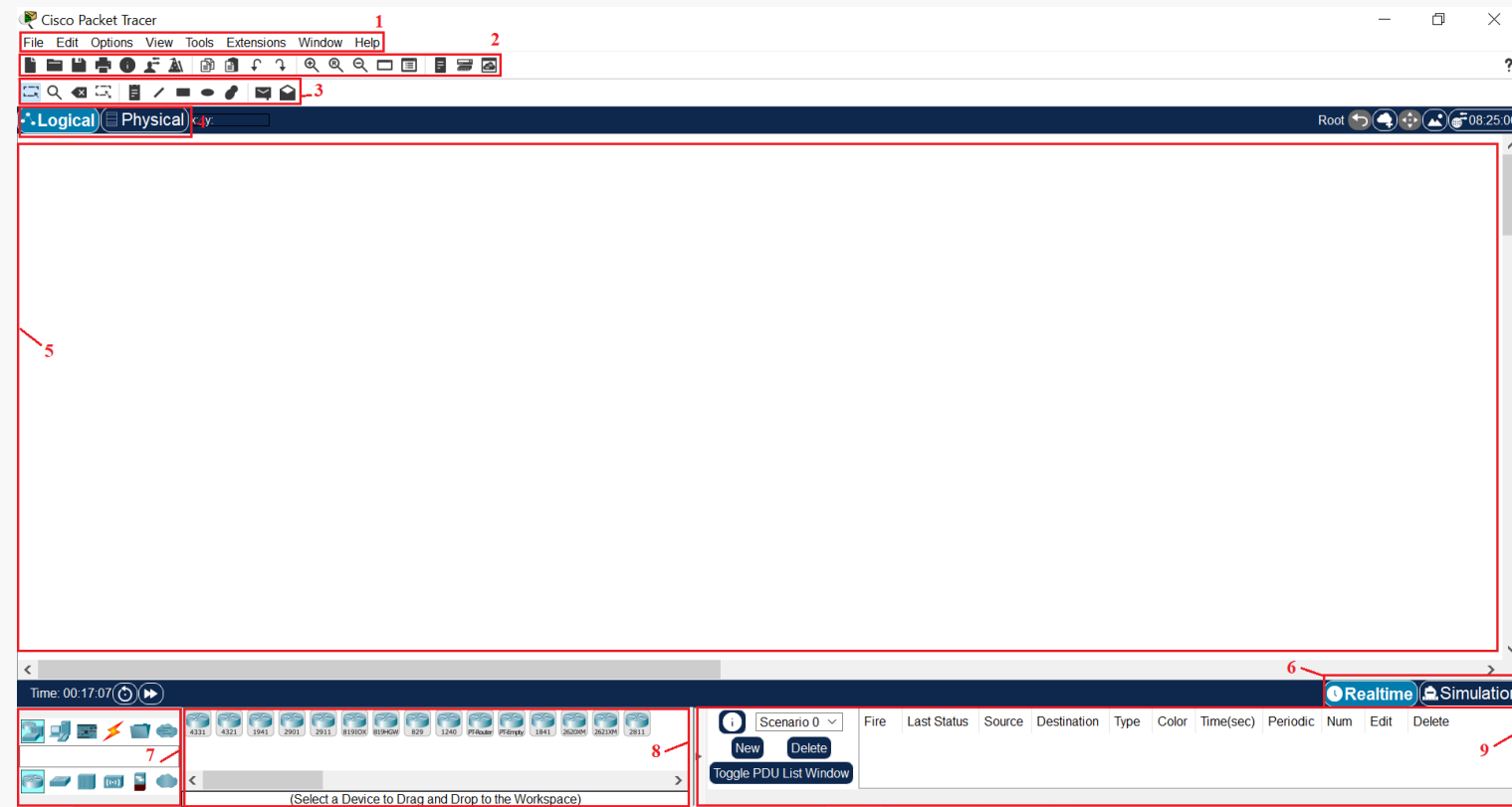
- Simulation, Visualization, Collaboration



Cisco Packet Tracer Overview

Packet Tracer - Interface

1. Menu Bar: basic menus and commands
2. Main Tool Bar: shortcut icons to the some menu commands
3. Additional commands
4. Logical/Physical Navigation Bar:
 - toggle between Physical or Logical Workspace
5. Workspace: the space to work or watch simulation
6. Realtime/Simulation Bar:
 - toggle between Realtime Mode and Simulation Mode
7. Device-Type Selection Box:
 - It contains the type of devices and connections available in Packet Tracer
 - The Device-Specific Selection Box will change depending on which type of device you choose.
8. Device-Specific Selection Box:
 - It is where you choose specifically which devices you want to put in your network and which connections to make.
9. User Created Packet Window:
 - It manages the packets you put in the network during simulation scenarios



Cisco Packet Tracer Overview



Packet Tracer – Customize User Experience

The screenshot shows the Cisco Packet Tracer application window. The 'Options' menu is open, displaying the following items:

- Preferences ... (Ctrl+R)
- Algorithm Settings (Ctrl+Shift+M)
- User Profile ... (Ctrl+Shift+U)
- View Command Log (Ctrl+Shift+V)

The 'Preferences' dialog box is open, showing the 'Interface' tab. The 'Customize User Experience' section contains the following settings:

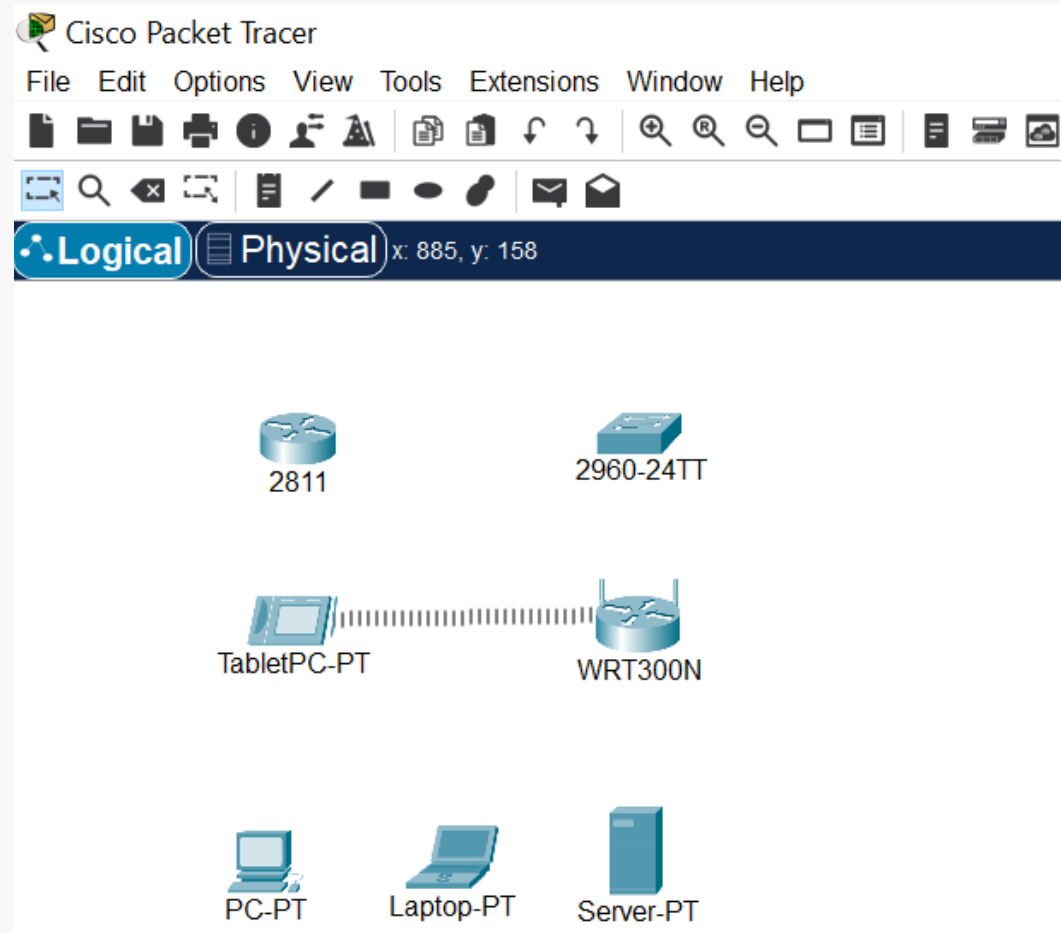
Setting	Value
Show Animation	Checked
Play Sound	Unchecked
Show Device Model Labels	Checked
Show Device Name Labels	Checked
Always Show Port Labels in Logical Workspace	Unchecked
Disable Auto Cable	Unchecked
Use Metric System (Uncheck to use Imperial)	Checked
Align logical workspace objects	Unchecked
Show Link Lights	Checked
Play Telephony Sound	Checked
Show QoS Stamps on Packets	Checked
Show Port Labels When Mouse Over in Logical Workspace	Checked
Enable Cable Length Effects	Unchecked
Use CLI as Device Default Tab	Unchecked
Show Cable Info Popup in Physical Workspace	Checked
Align physical workspace objects	Unchecked

Equipment in the Lab

The Labs - The devices

Type of devices in our lab:

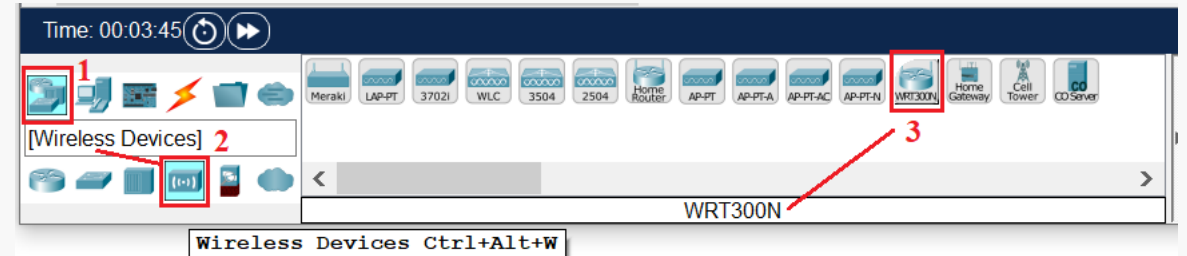
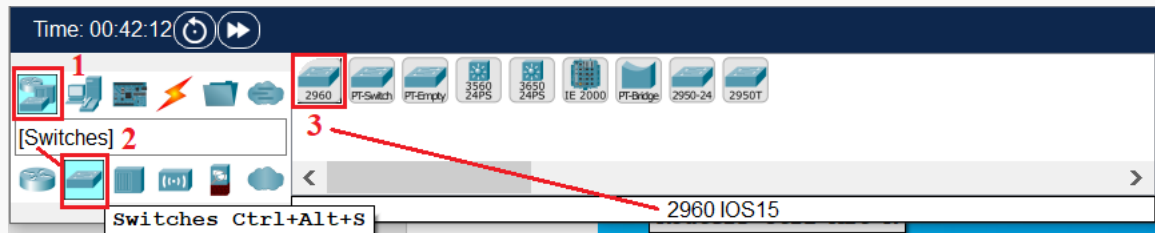
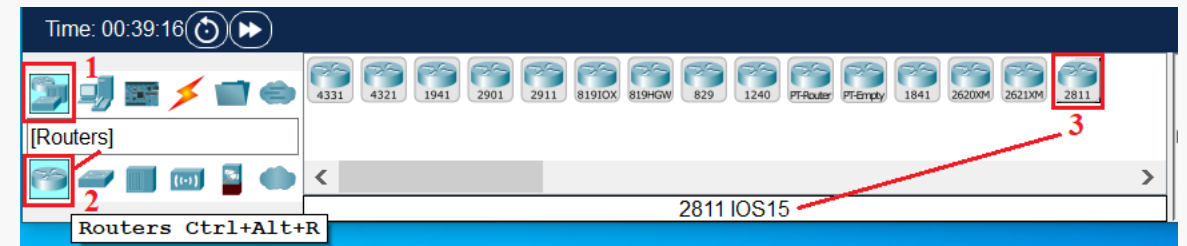
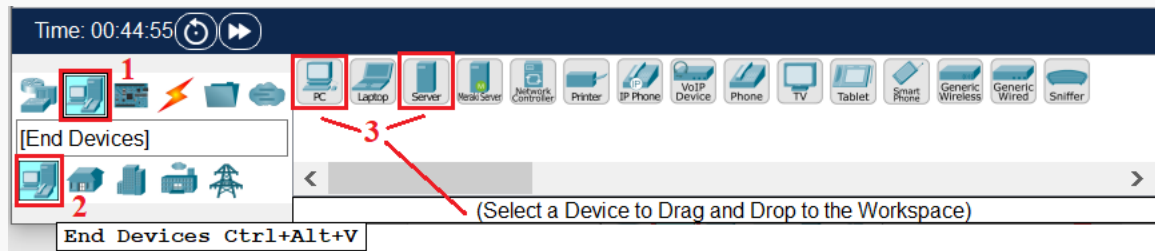
- Server (Server-PT)
- PC (PC-PT) and/or Laptop (Laptop-PT)
- Tablet (TabletPC-PT), other end devices
- Router 2811 (2811) with NM-2FE2W module
- Switch 2960 (2960-24TT)
- Wireless WRT300N (WRT300N)
- Connections



Equipment in the Lab

The Device – Place the device into the workspace

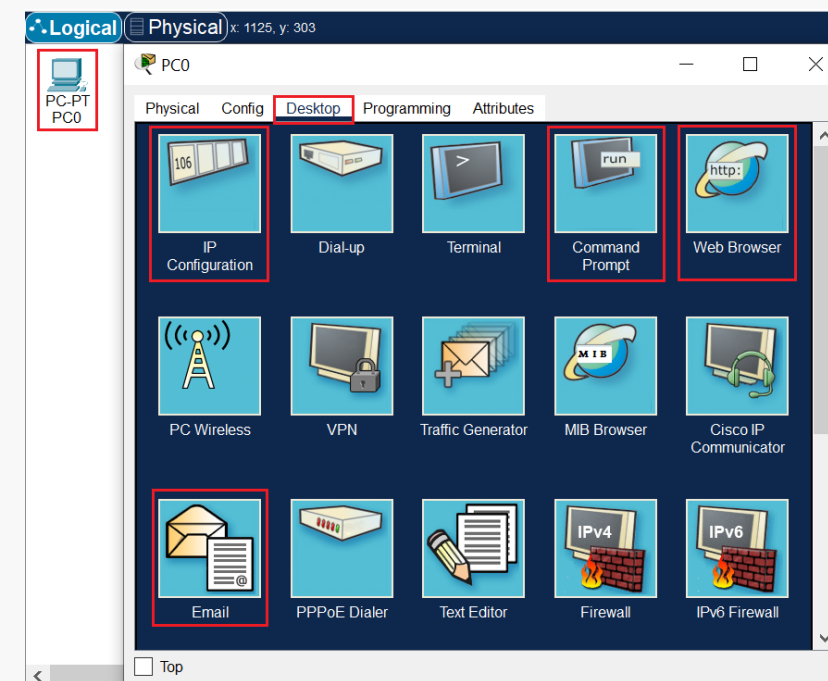
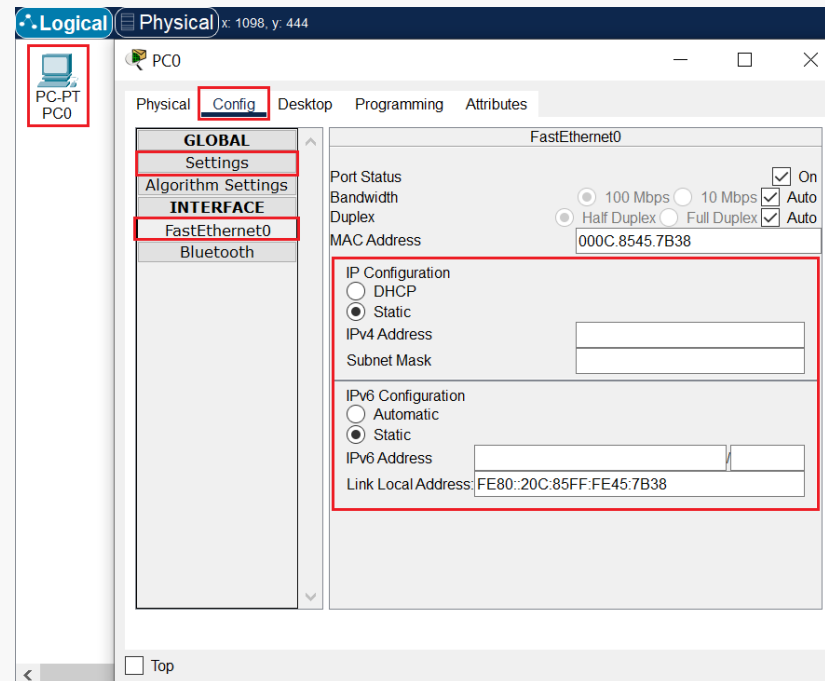
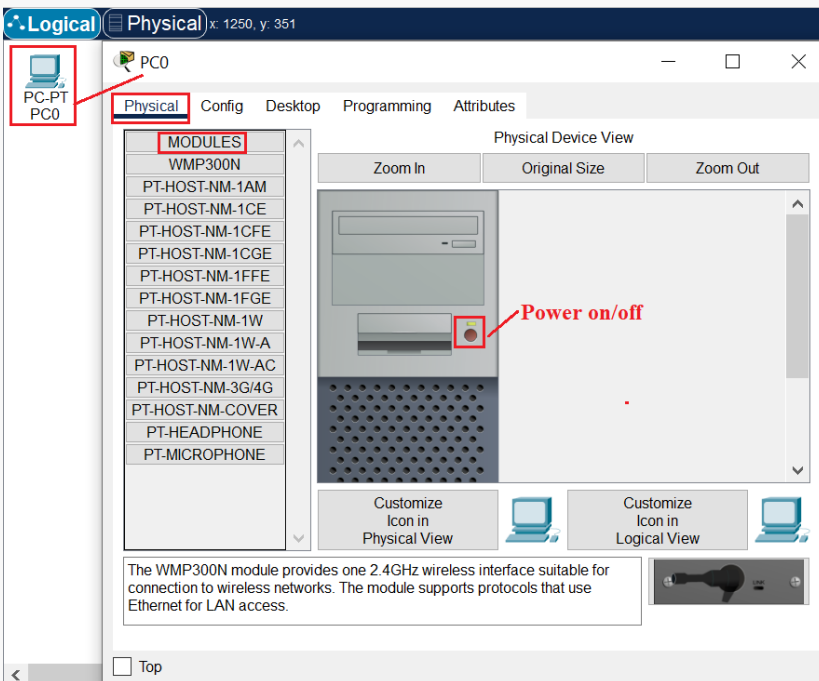
- Select a device and Drag / Drop it to the Workspace



Equipment in the Lab

The Device – Configuration Wizard

Main tabs on Configuration Wizard of the PC



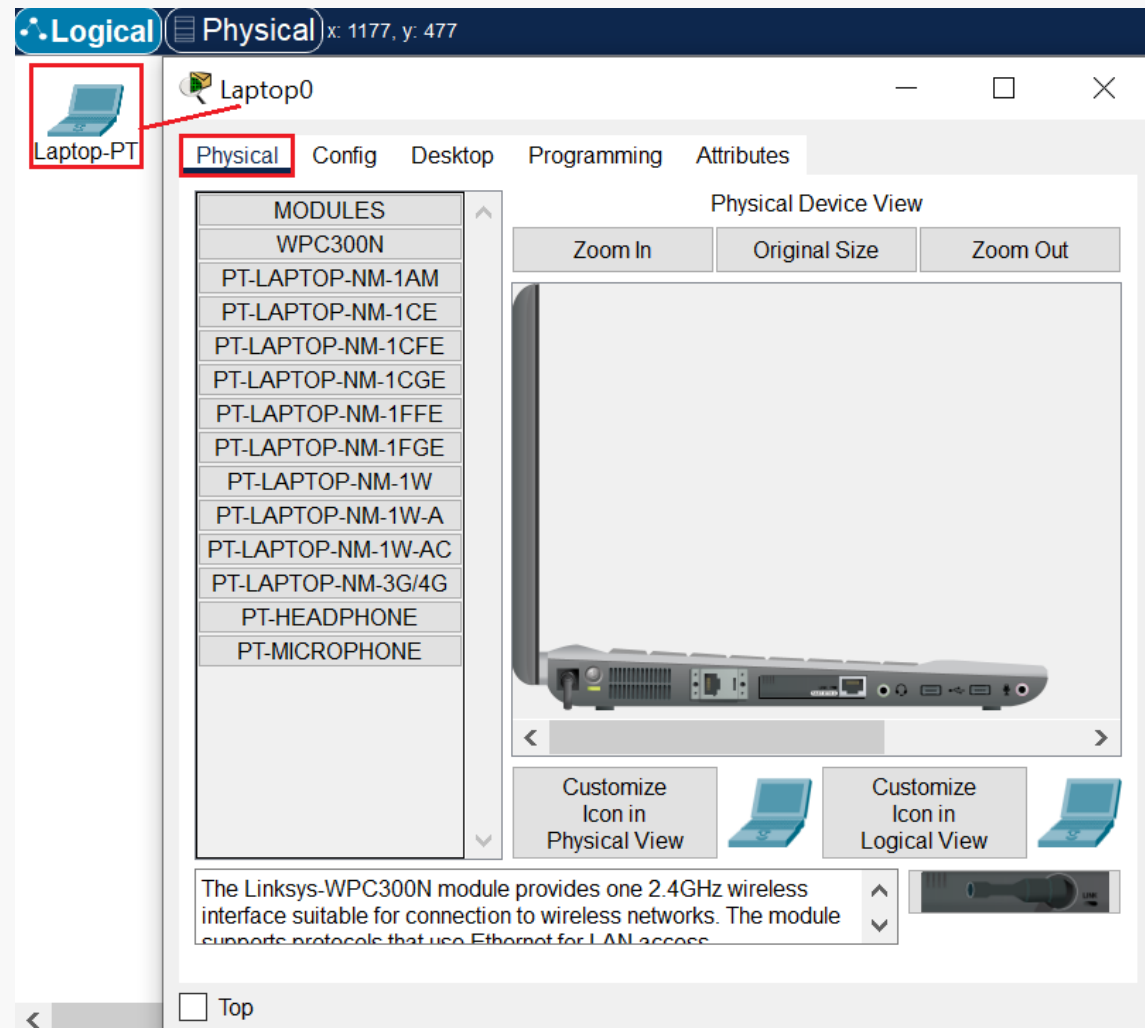
Equipment in the Lab



The Device – Configuration Wizard

Main tabs on Configuration Wizard of the Laptop

- Config, Desktop tabs as PC

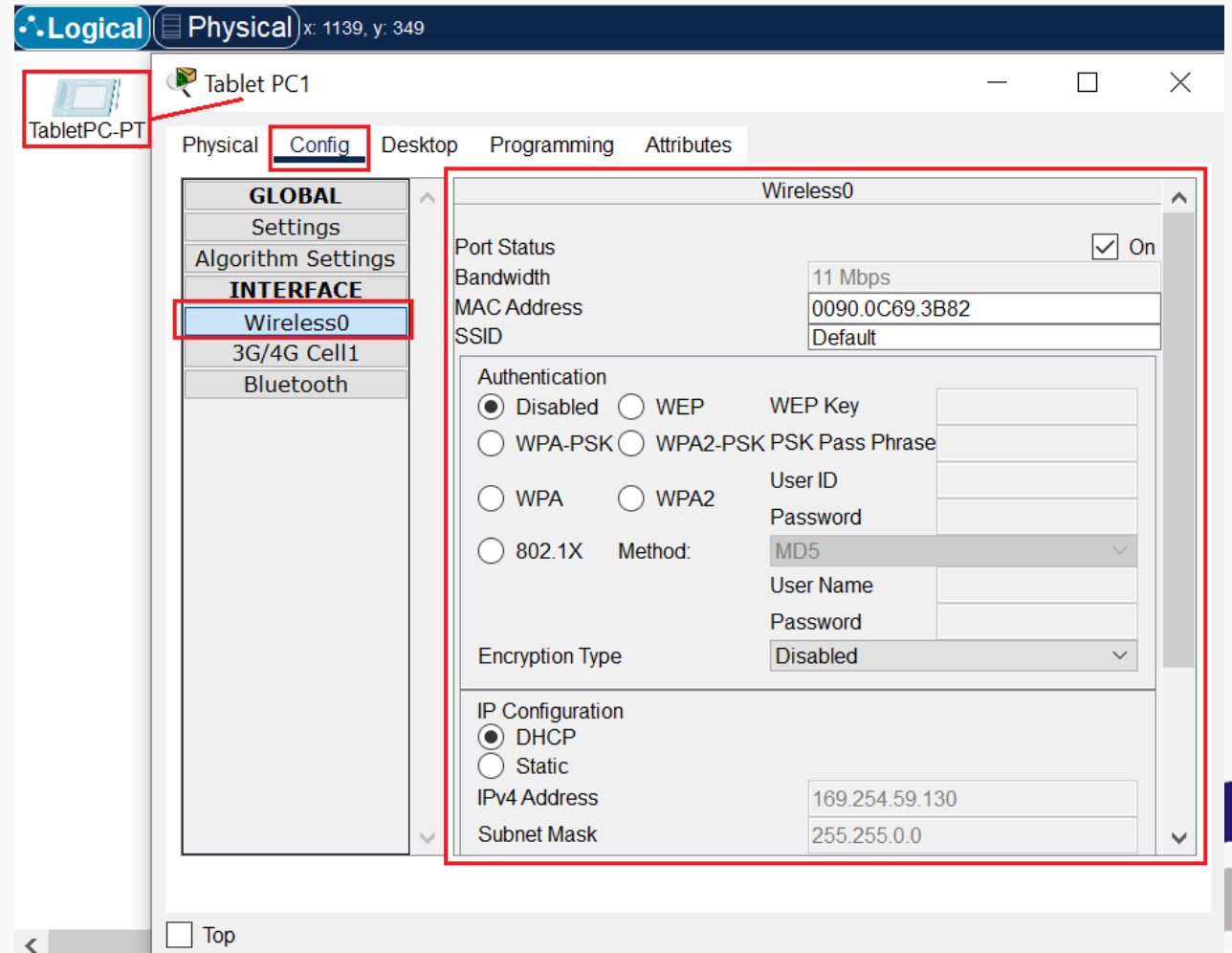


Equipment in the Lab

The Device – Configuration Wizard

Main tabs on Configuration Wizard of the TabletPC

- Physical, Desktop tabs as PC
- Other end devices (the same)



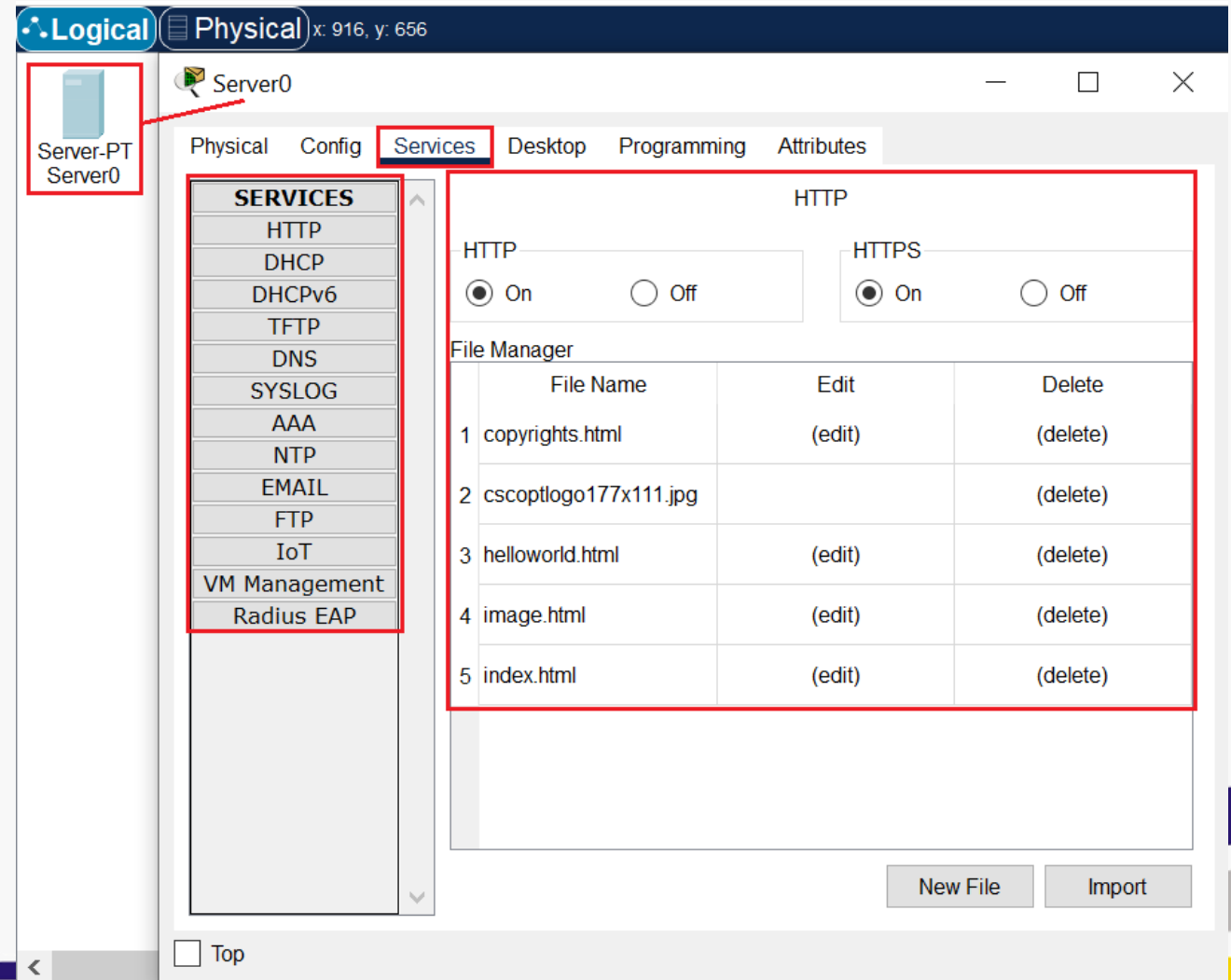
Equipment in the Lab



The Device – Configuration Wizard

Main tabs on Configuration Wizard of the Server

- Physical, Config, Desktop tabs as PC

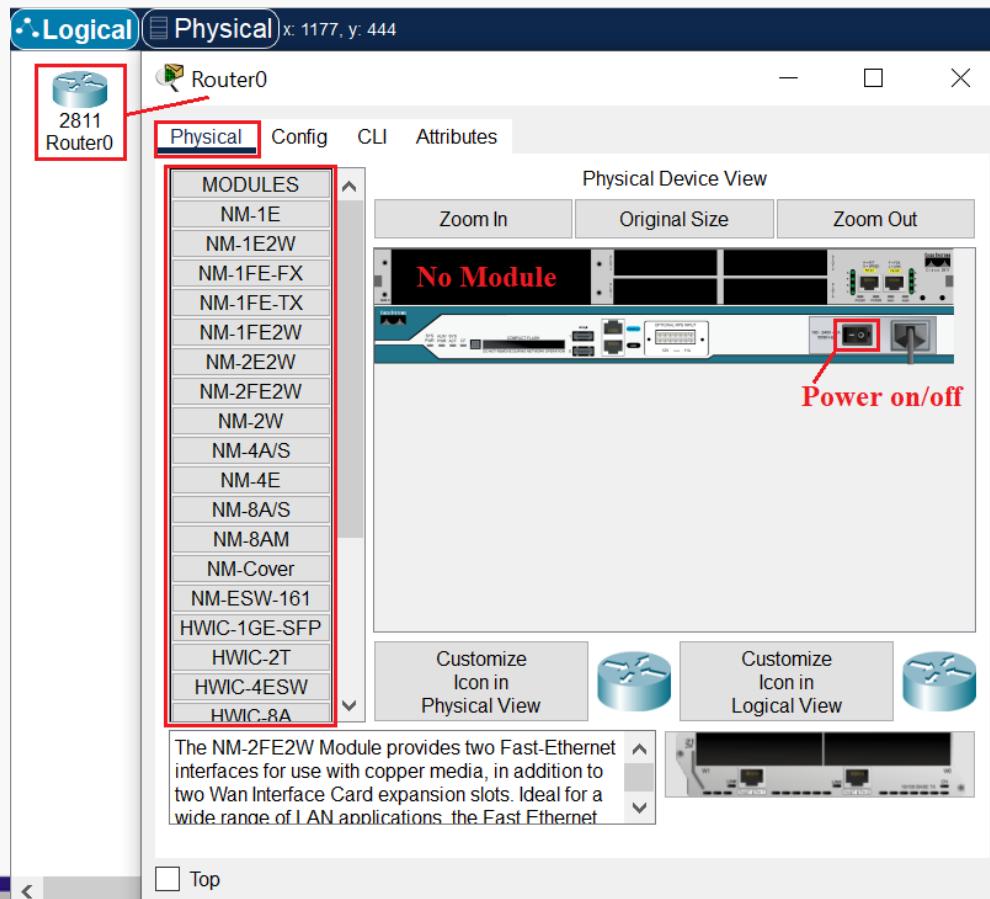


Equipment in the Lab

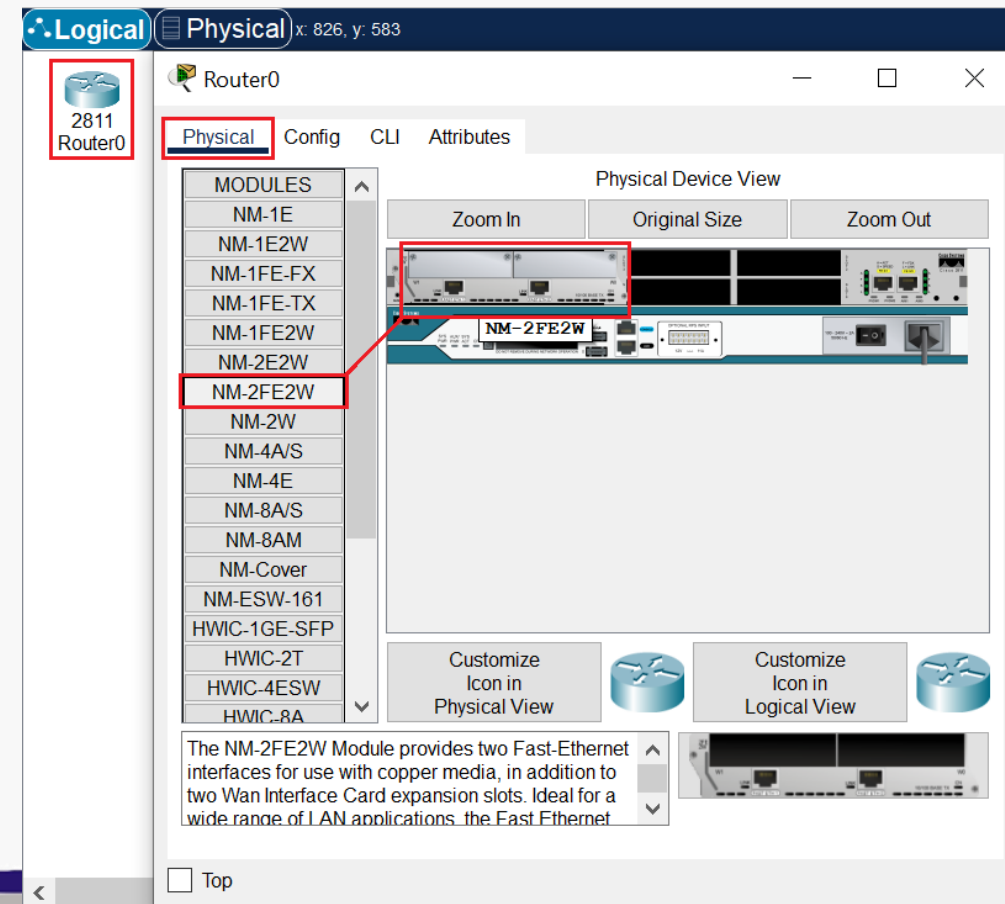
The Device – Configuration Wizard

Main tabs on Configuration Wizard of the Router

- Before adding the module



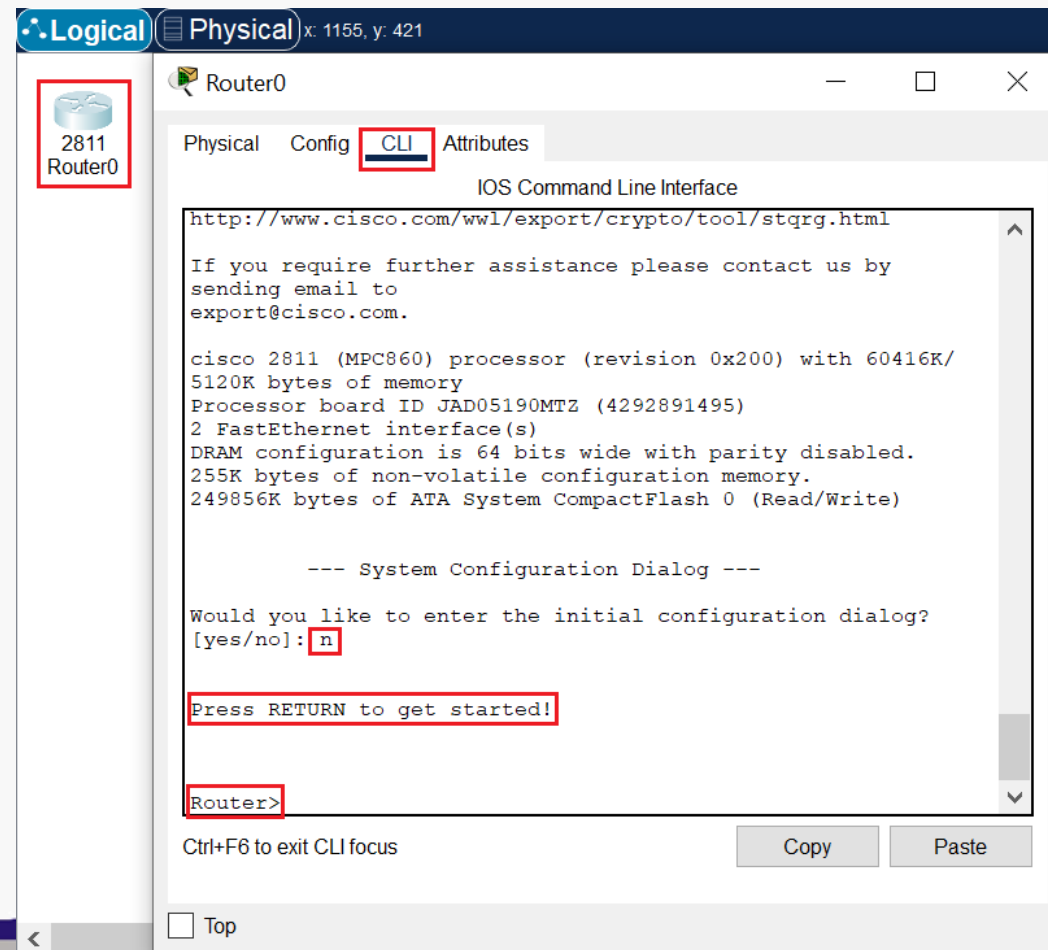
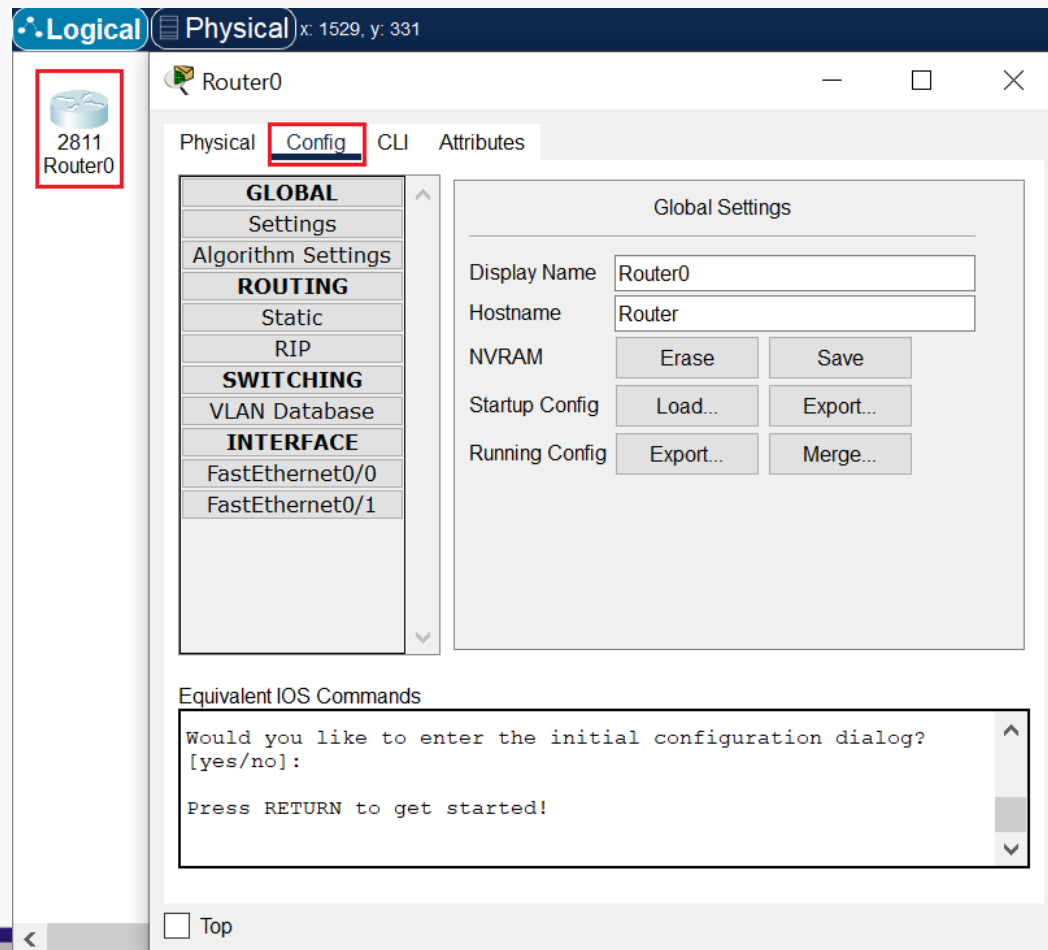
- Drag and Drop the NM-2FE2W module to the Router



Equipment in the Lab

The Device – Configuration Wizard

Main tabs on Configuration Wizard of the Router

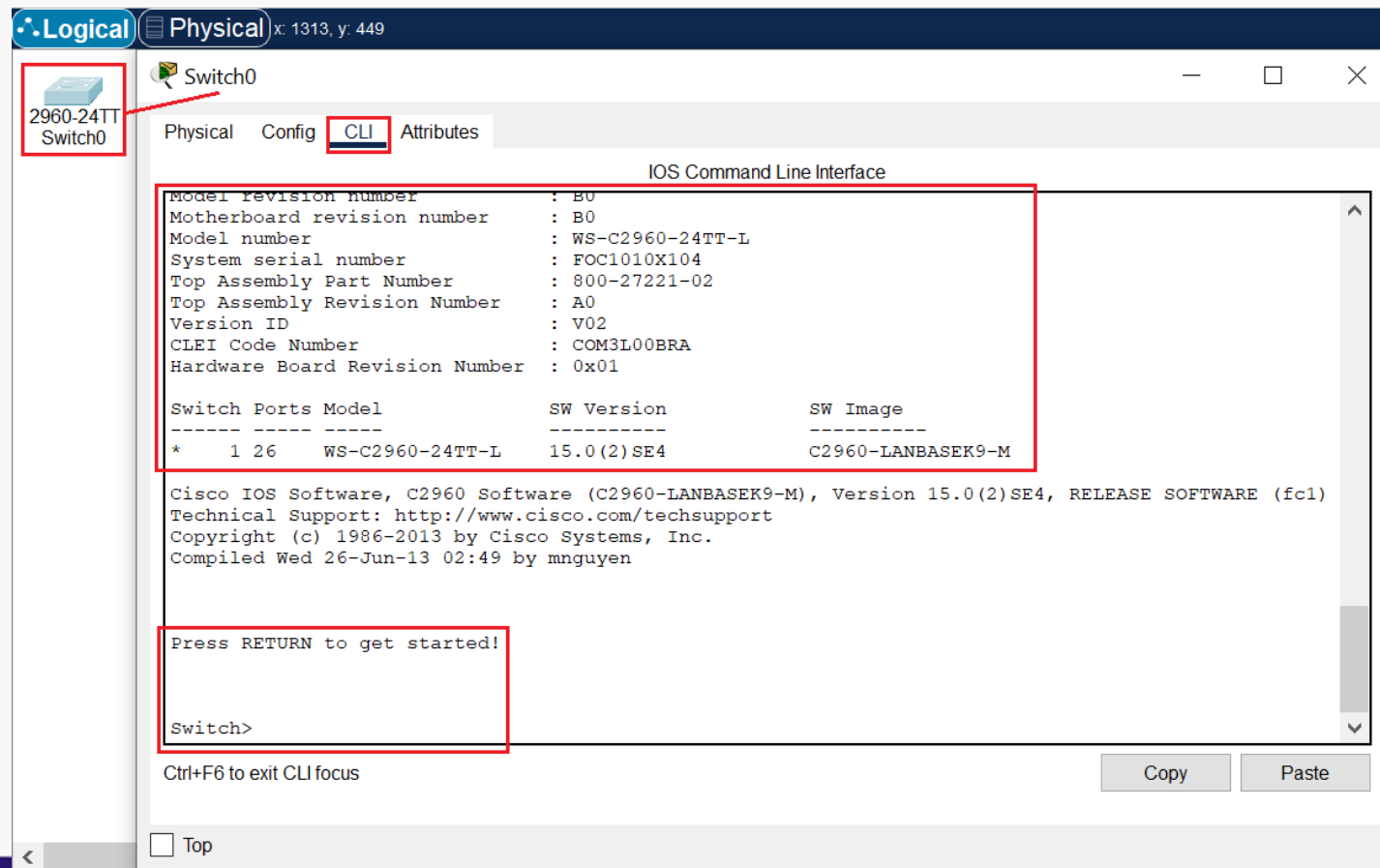


Equipment in the Lab

The Device – Configuration Wizard

Main tabs on Configuration Wizard of the Switch

- Physical, Config tabs as Router

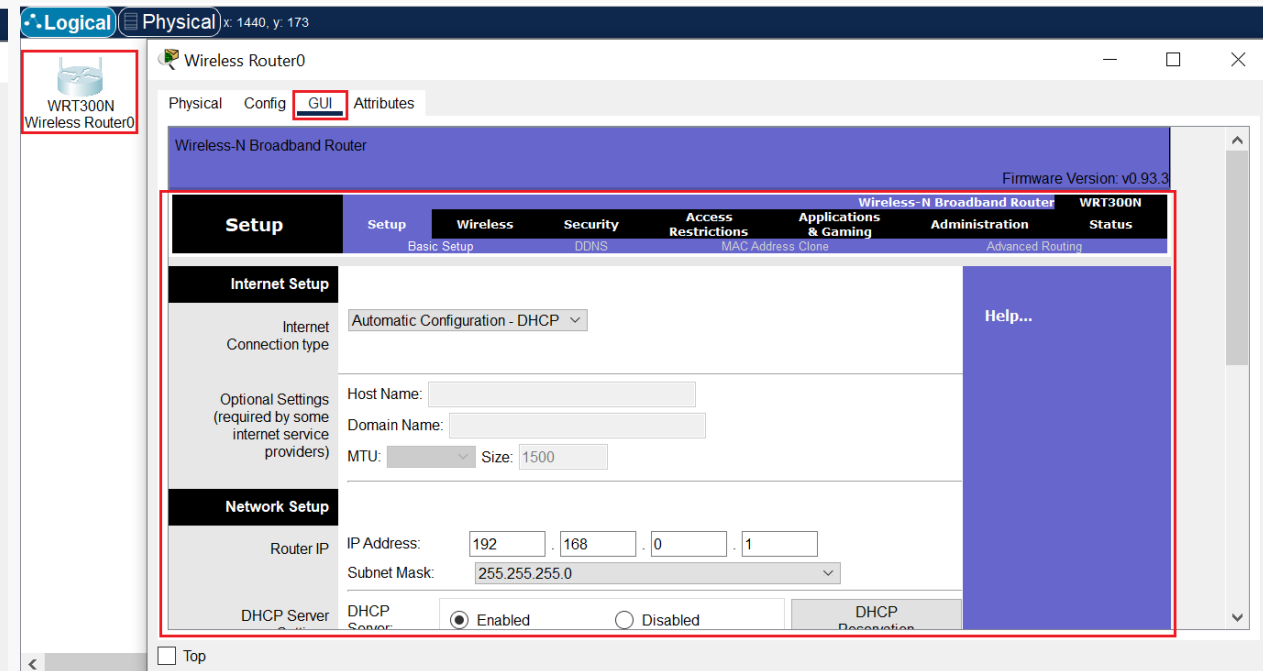
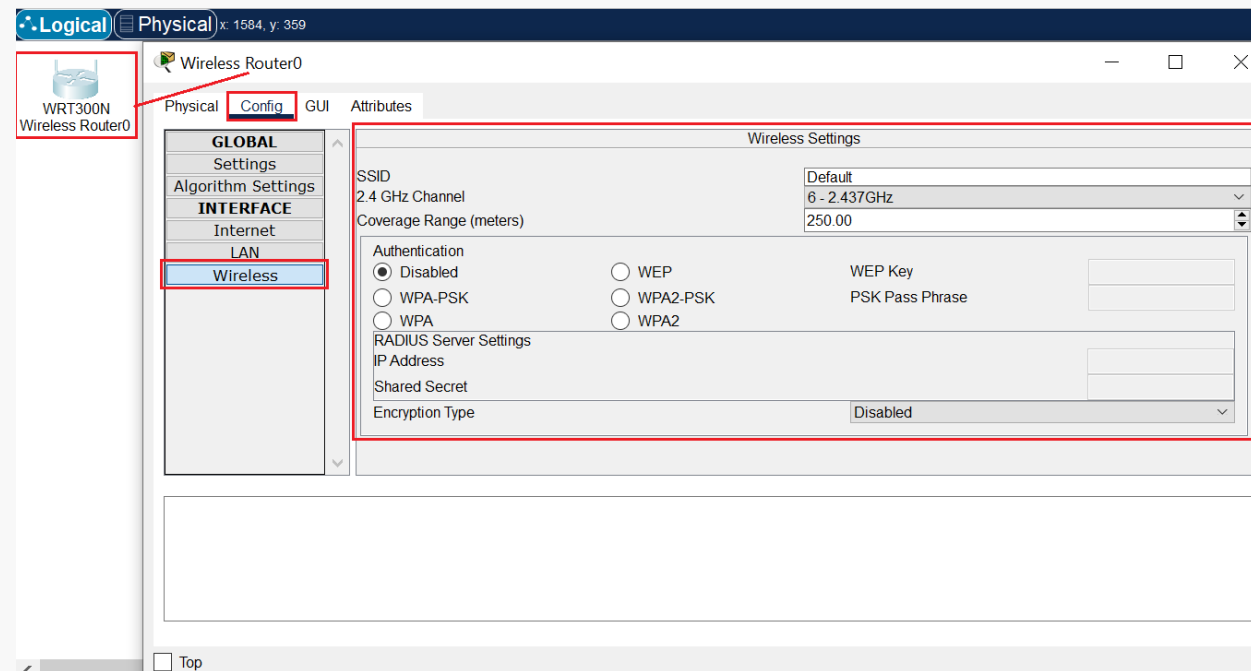


Equipment in the Lab

The Device – Configuration Wizard

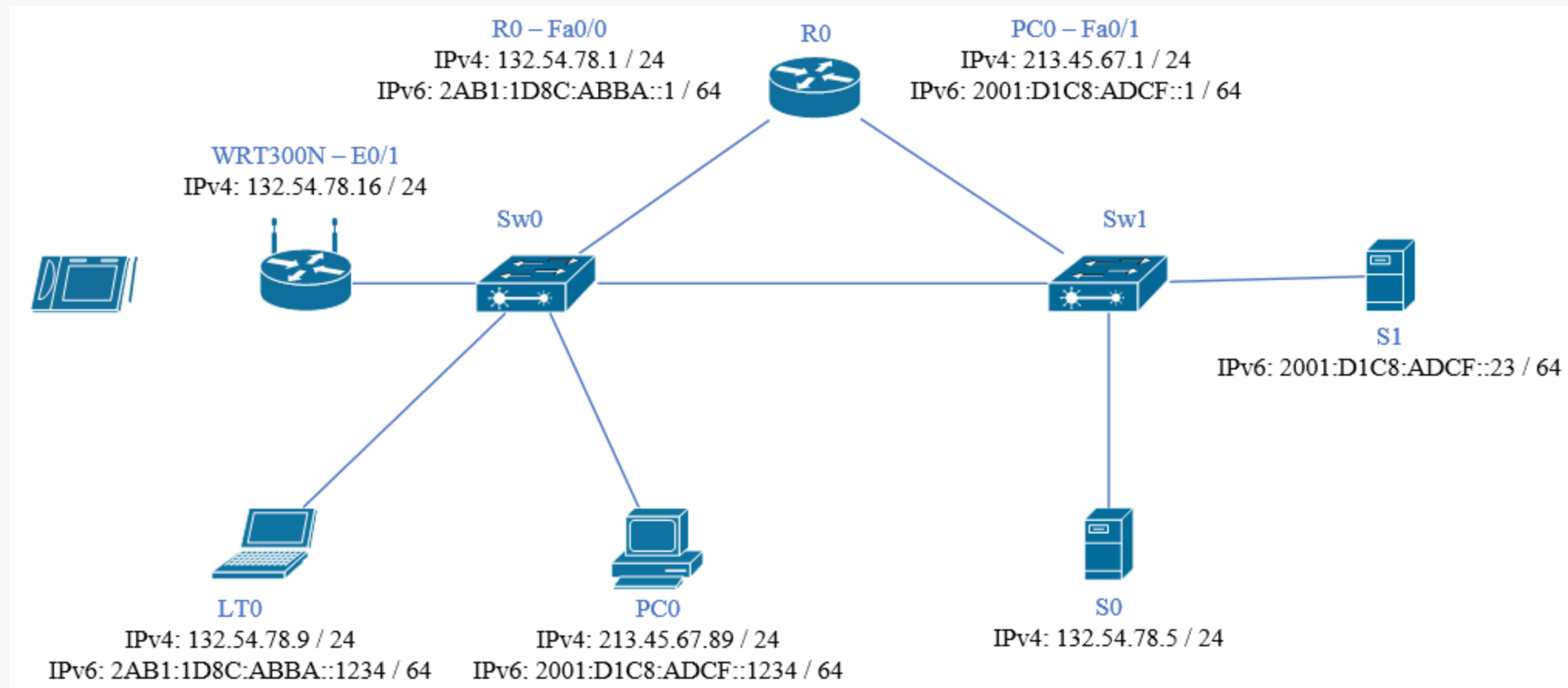
Main tabs on Configuration Wizard of the Wireless

- Physical tab as Router or Switch



Exercise 1 – The Requires

Network topology



Exercise 1 – The Requires

Other information

N0	Name of Device	Type of Device	Interface	To Interface (of device)	IP Address	Subnet Mask	Default Gateway
1	LT0	Laptop-PT	Fa0	Fa0/1 (Sw0)	IPv4: 132.54.78.9	255.255.255.0	IPv4: 132.54.78.1
					IPv6: 2AB1:1D8C:ABBA::1234	/64	IPv6: 2AB1:1D8C:ABBA::1
2	PC0	PC-PT	Fa0	Fa0/2 (Sw0)	IPv4: 213.45.67.89	255.255.255.0	IPv4: 213.45.67.1
					IPv6: 2001:D1C8:ADCF::1234	/64	IPv6: 2001:D1C8:ADCF::1
3	S0	Server-PT	Fa0	Fa0/1 (Sw1)	IPv4: 132.54.78.5	255.255.255.0	IPv4: 132.54.78.1
4	S1	Server-PT	Fa0	Fa0/2 (Sw1)	IPv6: 2001:D1C8:ADCF::23	/64	IPv6: 2001:D1C8:ADCF::1
5	TPC0	TabletPC-PT	Wle0	Wle (WR0)			
6	WR0	WRT300N	E0/1 (or E1)	Fa0/4 (Sw0)	IPv4: 132.54.78.16	255.255.255.0	IPv4: 132.54.78.1
					IPv6: 2AB1:1D8C:ABBA::16	/64	IPv6: 2AB1:1D8C:ABBA::1
7	R0	2811	Fa0/0	Fa0/3 (Sw0)	IPv4: 132.54.78.1	255.255.255.0	
					IPv6: 2AB1:1D8C:ABBA::1	/64	
			Fa0/1	Fa0/3 (Sw1)	IPv4: 213.45.67.1	255.255.255.0	
					IPv6: 2001:D1C8:ADCF::1	/64	
8	Sw0	2960-24TT	Gi0/1	Gi0/1 (SW1)			
9	Sw1	2960-24TT	Gi0/1	Gi0/1 (SW0)			

Exercise 1 – The steps to do exercises

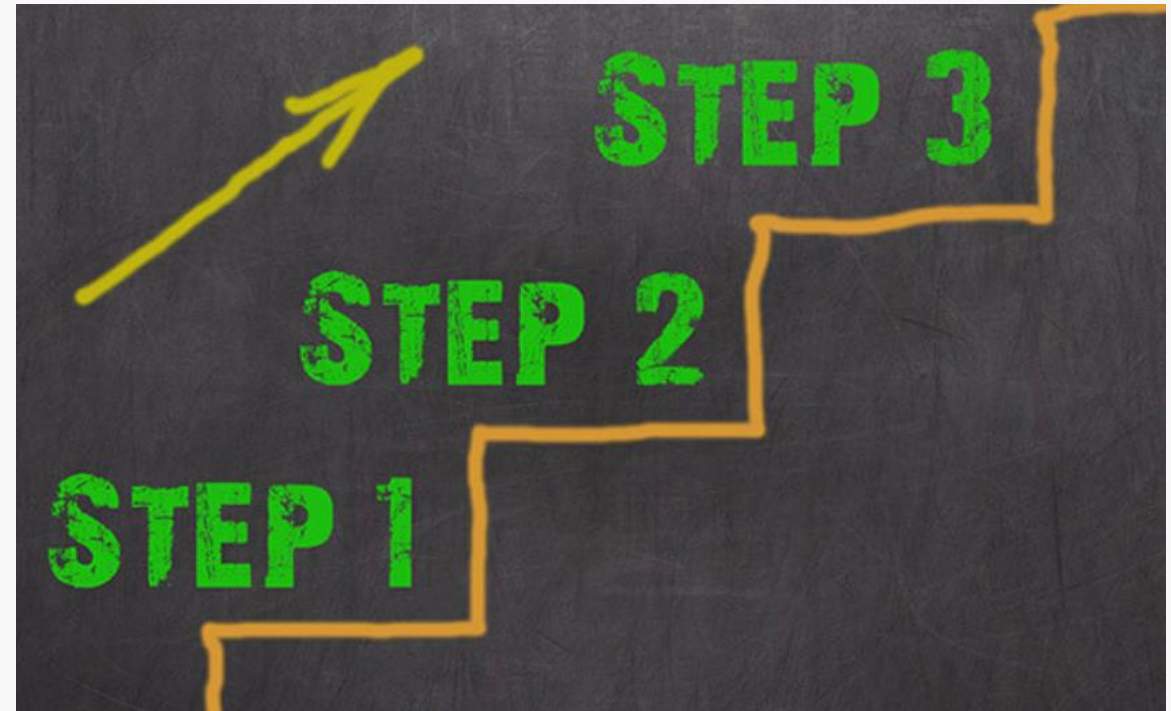
Step 1: Create the Network Topology

- Take the devices into workspace
- Complete the cabling

Step 2: Configure the IP address

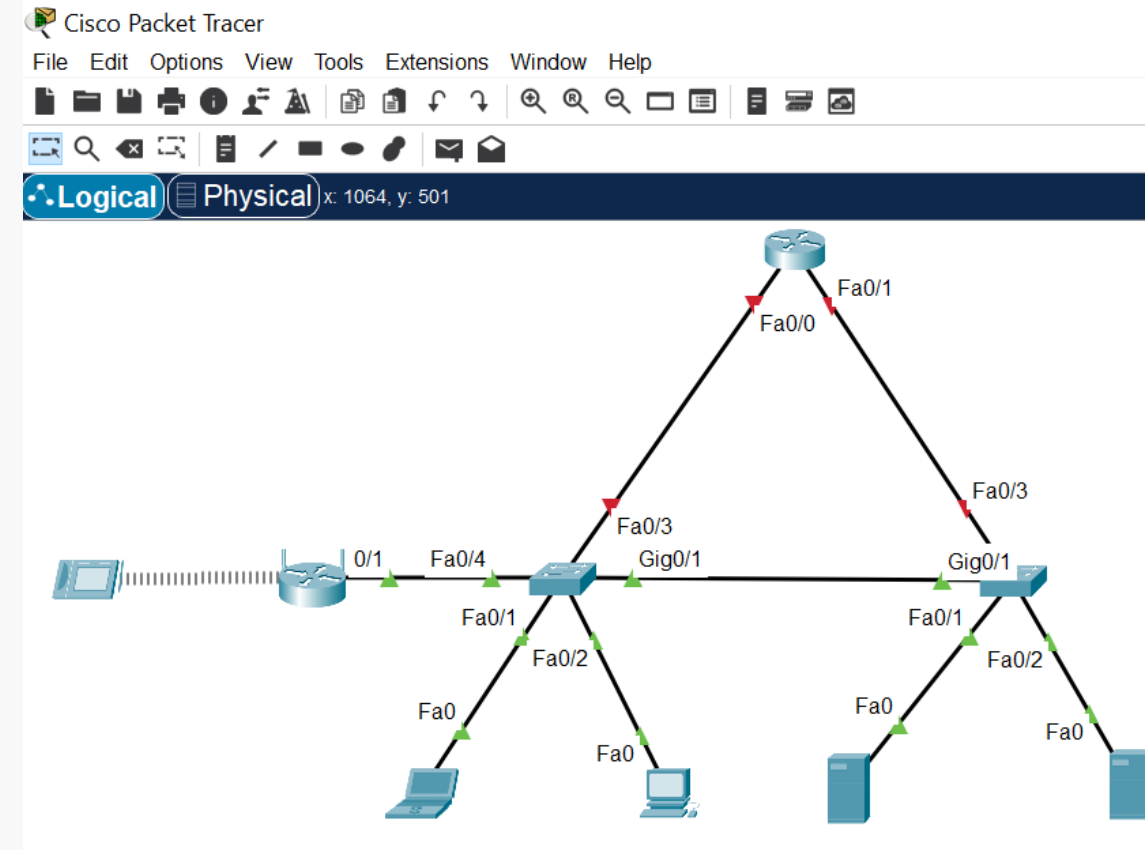
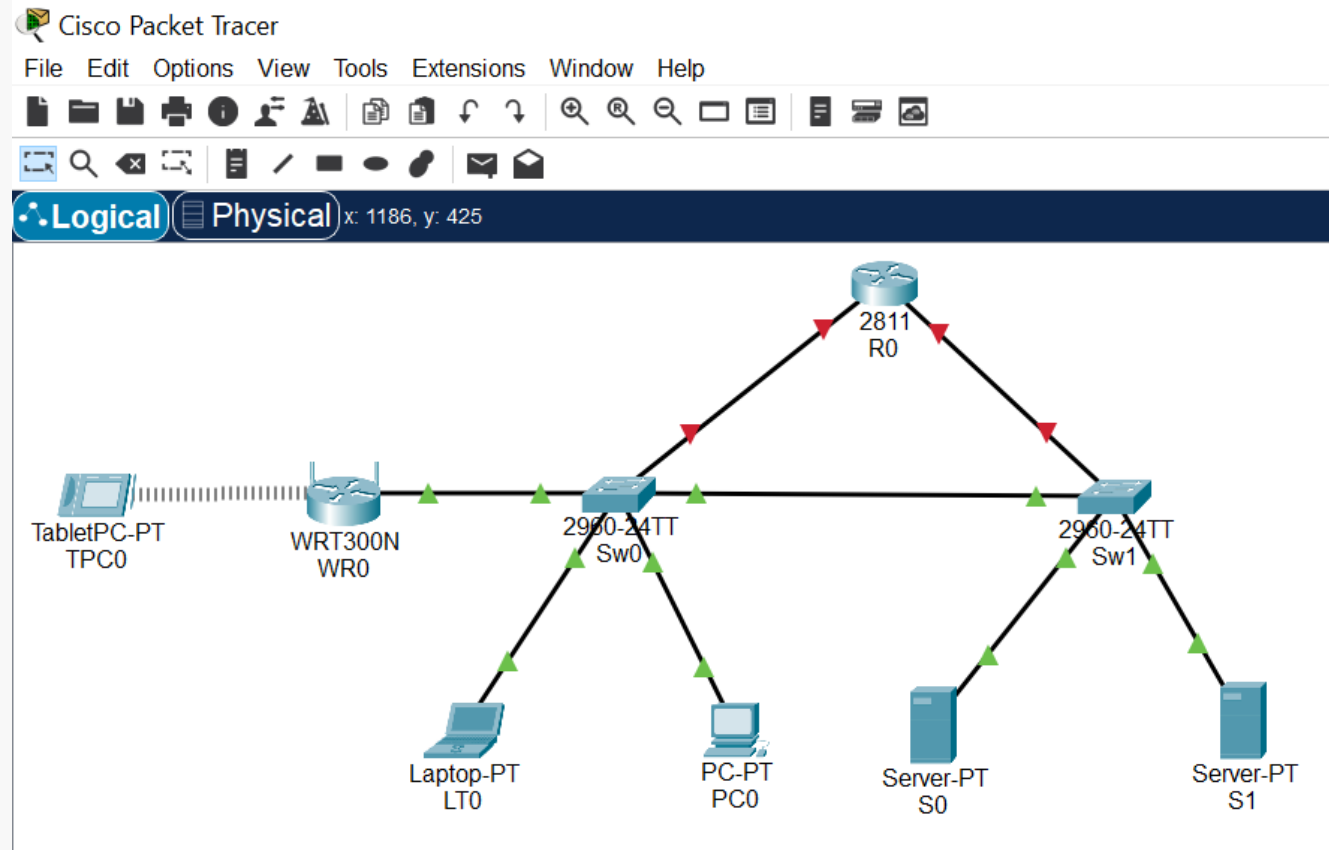
- on the hosts.
- on routers

Step 3: Test connectivity.



Exercise 1 – Step 1: Create the Network Topology

Result of step 1

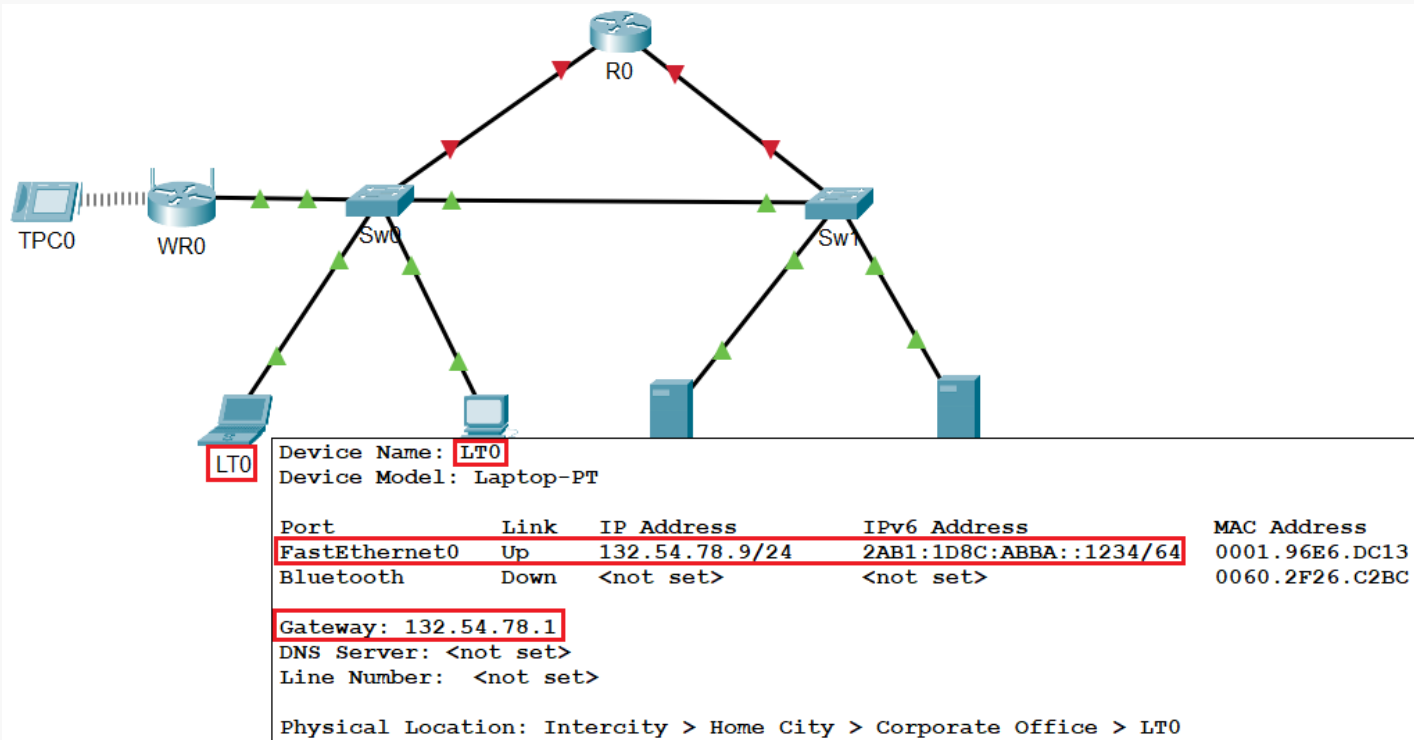
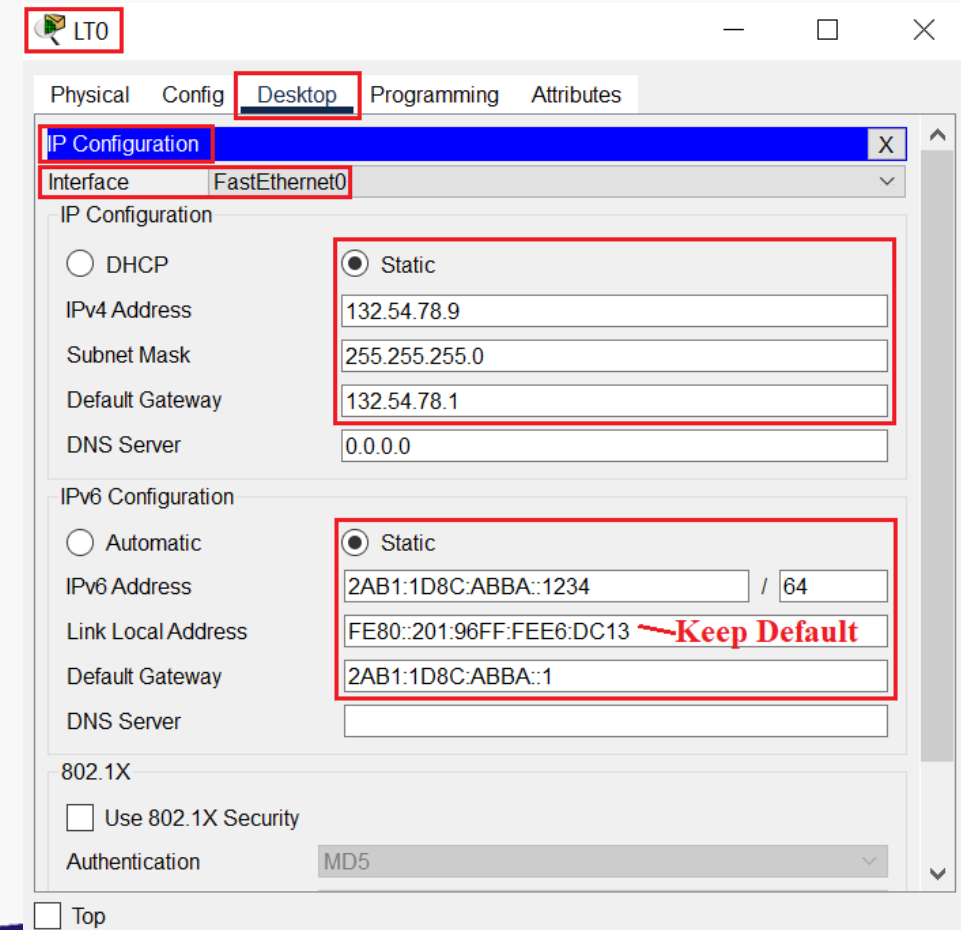


Practice

Exercise 1 – Step 2: Configure the IP address

Result of step 2

- The configuration for LT0 is below
- Other devices (PC0, S0, S1, WR0) do the same

LT0

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 132.54.78.9

Subnet Mask: 255.255.255.0

Default Gateway: 132.54.78.1

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: 2AB1:1D8C:ABBA::1234 / 64

Link Local Address: FE80::201:96FF:FEE6:DC13 **Keep Default**

Default Gateway: 2AB1:1D8C:ABBA::1

DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

☐ Top

Exercise 1 – Step 2: Configure the IP address

Result of step 2

- The configuration for Fa0/0 (R0) is below
- Interface Fa0/1 (R0) does the same

Configure IP address for Fa0/0 (R0)

- Enter into global configuration mode

```
Router#config t
```

```
Router(config)#
```

- Enter into interface mode

```
Router(config)#
```

```
Router(config)#interface fa0/0
```

- Configure IP address on Fa0/0

```
Router(config-if)#ip address 132.54.78.1 255.255.255.0
```

```
Router(config-if)#ipv6 address 2AB1:1D8C:ABBA::1/64
```

```
Router(config-if)#no shut
```



Physical Config **CLI** Attributes

IOS Command Line Interface

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

Press RETURN to get started!

```
Router>
```

```
Router>en
```

```
Router#config t
```

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

```
Router(config)#interface fa0/0
```

```
Router(config-if)#ip address 132.54.78.1 255.255.255.0
```

```
Router(config-if)#ipv6 address 2AB1:1D8C:ABBA::1/64
```

```
Router(config-if)#no shut
```

```
Router(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
```

```
Router(config-if)#exit
```

```
Router(config)#exit
```

```
Router#
```

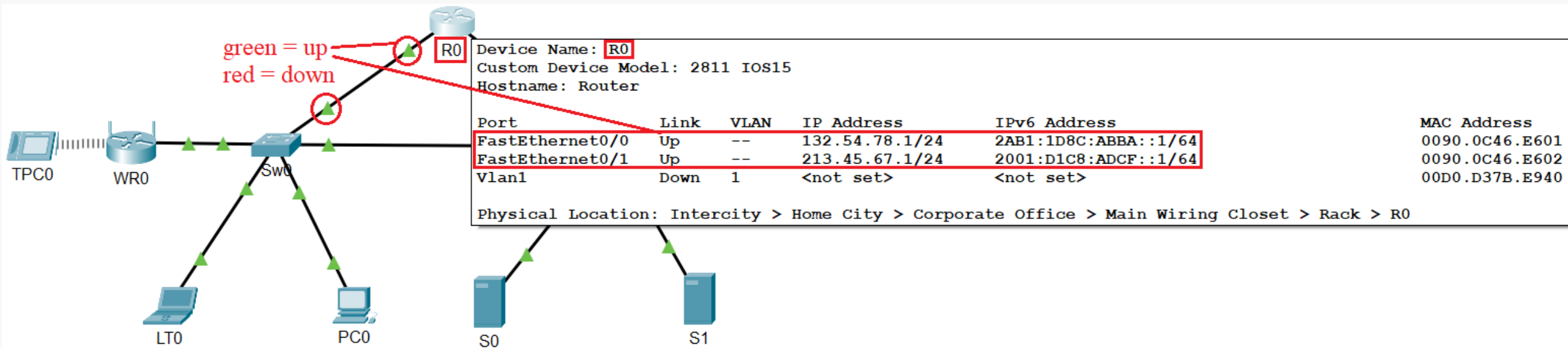
```
%SYS-5-CONFIG_I: Configured from console by console
```

```
Router#exit
```

```
Router>
```

Exercise 1 – Step 2: Configure the IP address

Result of step 2

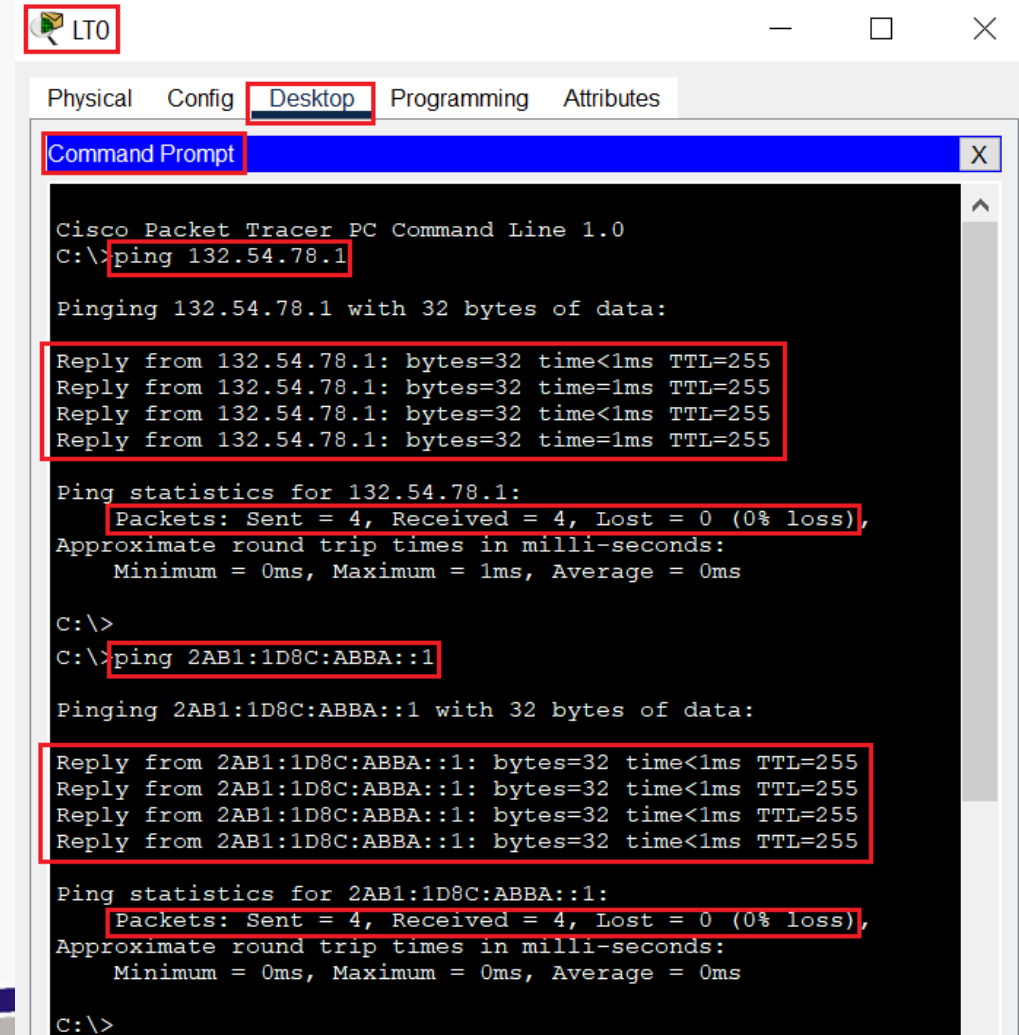


Exercise 1 – Step 3: Test connectivity

Result of step 3

On the hosts (LT0, PC0, S0,...)

- Open "Command Prompt"
- Execute "ping" command to it's gateway
- Observe the information displayed on the screen
- Execute "ping" command to other hosts
- Observe the information displayed on the screen



```
LT0
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 132.54.78.1

Pinging 132.54.78.1 with 32 bytes of data:

Reply from 132.54.78.1: bytes=32 time<1ms TTL=255
Reply from 132.54.78.1: bytes=32 time=1ms TTL=255
Reply from 132.54.78.1: bytes=32 time<1ms TTL=255
Reply from 132.54.78.1: bytes=32 time=1ms TTL=255

Ping statistics for 132.54.78.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
C:\>ping 2AB1:1D8C:ABBA::1

Pinging 2AB1:1D8C:ABBA::1 with 32 bytes of data:

Reply from 2AB1:1D8C:ABBA::1: bytes=32 time<1ms TTL=255
Reply from 2AB1:1D8C:ABBA::1: bytes=32 time<1ms TTL=255
Reply from 2AB1:1D8C:ABBA::1: bytes=32 time<1ms TTL=255
Reply from 2AB1:1D8C:ABBA::1: bytes=32 time<1ms TTL=255

Ping statistics for 2AB1:1D8C:ABBA::1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

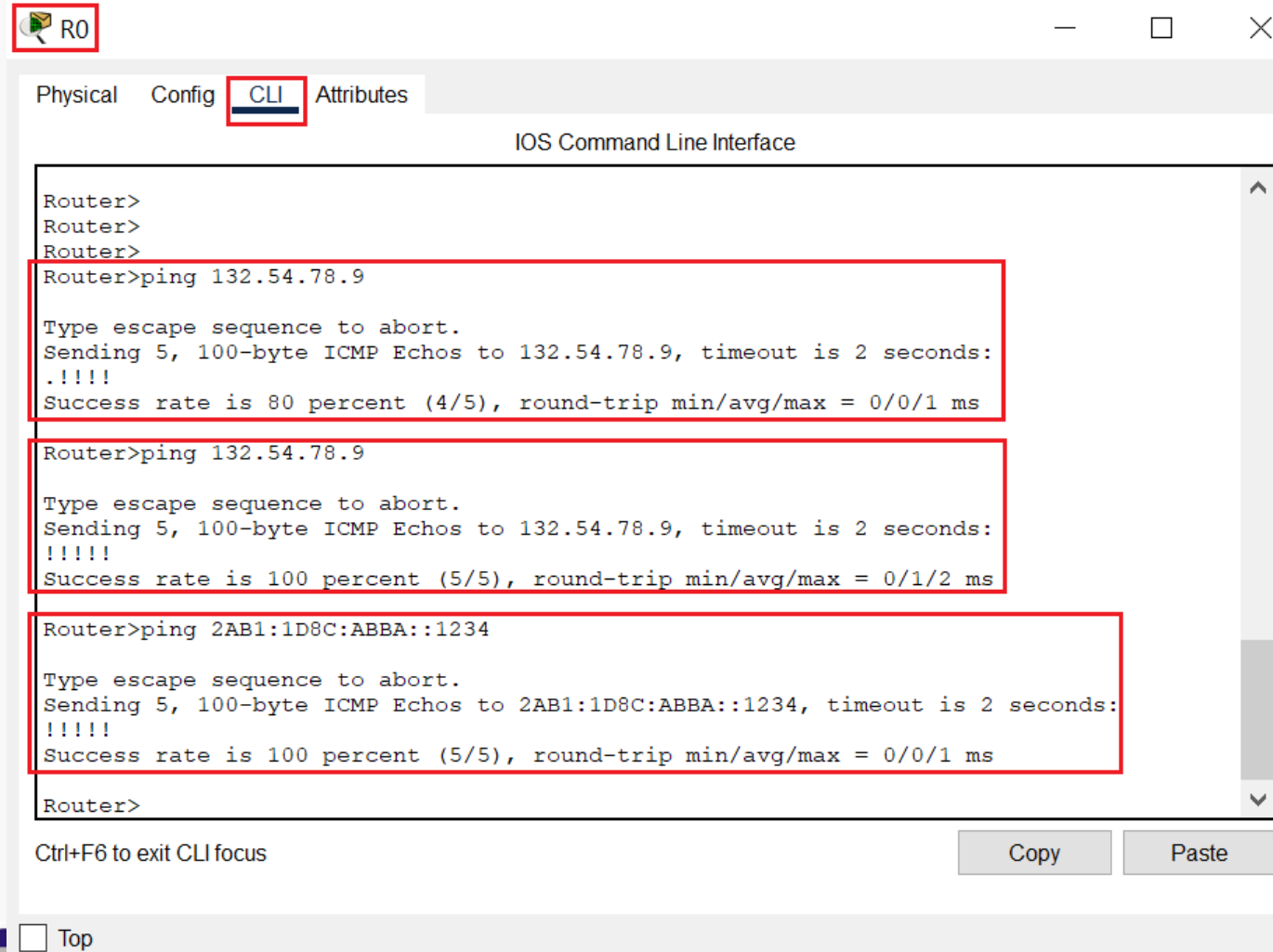
C:\>
```

Exercise 1 – Step 3: Test connectivity

Result of step 3

On the Router (R0)

- Open "CLI or Command Line Interface"
- Execute "ping" command to hosts (LT0, PC0,...)
- Observe the information displayed on the screen



The screenshot shows the CLI interface of Router R0. The 'CLI' tab is selected. The interface displays the following commands and their outputs:

```
Router>
Router>
Router>
Router>ping 132.54.78.9
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 132.54.78.9, timeout is 2 seconds:
!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 0/0/1 ms

Router>ping 132.54.78.9
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 132.54.78.9, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/1/2 ms

Router>ping 2AB1:1D8C:ABBA::1234
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 2AB1:1D8C:ABBA::1234, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms

Router>
```

At the bottom of the window, there is a status bar with the text "Ctrl+F6 to exit CLI focus" and two buttons: "Copy" and "Paste". A "Top" button is also visible at the bottom left of the window frame.

Questions and Answers