Ceng 3007 Assignment as Midterm

Mugla Sıtkı Kocman University -
ComputerNetworks

Mugla, Turkey

Abstract

The purpose of this assignment is to create a simple network using network devices. I created this application according to Network Topologies. I downloaded and used Cisco Packet Tracer on my computer while doing this assignment.Cisco Packet Tracer is really a very successful software.The main purpose of Cisco Packet Tracer is a simulation that helps students learn networking principles through hands-on experience and develop skills specific to Cisco technology. That's why I used this software. During this homework, I have known and used many network devices.
The devices I use are:
Switch - Cisco 2960-24 TT
Access Point
Server
IP Telephone
PC, Laptop, Printer, Tablet, Wireless End Device
IoT devices shown in the topology
Appropriate cabling and wireless

Keywords: Network, Network Topologies, Cisco Packet Tracer, Network Devices

1. Introduction

The subject of the assignment is to create a network with Cisco Packet Tracer.During my homework, I connected many network devices with certain protocols with Cisco Packet Tracer, which I installed on the Windows operating system.There are many devices in the network model I have created. For example, I connected some devices with cable while some devices were

connected with wireless feature.The laptop needs a "wireless adapter" and I added a wireless adapter in the laptop.I performed all of these operations with Cisco Packet Tracer and this simulation is simple to use.

2. Assignments

Python Script with Multiprocess and Control duplicate files I solved 4 different questions in this project:

1.Install packet tracer on your PC/laptop - (Screenshot of your desktop with the application running is expected in the report)

2.Implement the following topology which is formed of
Switch - Cisco 2960-24 TT
Access Point
Server
IP Telephone
PC, Laptop, Printer, Tablet, Wireless End Device
IoT devices shown in the topology
Appropriate cabling and wireless .

3.Give static IP addresses to devices from 192.168.1.0 255.255.0 network. Fill the following table with the values in your simulation:

4.Ensure that these devices can make a communication between
a Physical Layer: Ensure the lines are UP
b Network Layer: Test IP based connection

What I used machine in this project:
CPU Features: Intel Core i3-6006U CPU 2.00GHz
RAM: 12GB
Harddisk: 240GB SSD + 1TB HDD
Core Count: 1
OS: Windows 10

2.1 Install packet tracer on your PC/laptop
Firstly, I installed Cisco Packet Tracer on my computer using the link **"https://www.netacad.com tracer"**. After that I copied the shortcut to the desktop.If you notice in the

picture, I have the shortcut in the red circle. I showed this below

2.2 Implement the following topology which is formed devices
Firstly In this task, I rebuilt the devices one by one and then connected them with each other according to the characteristics of each device and the network topology.
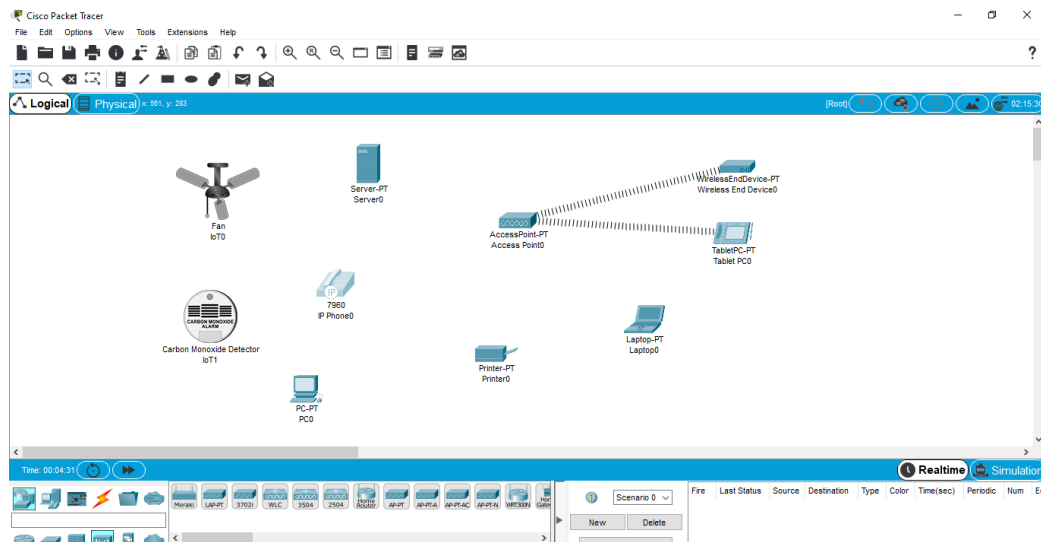
As you can see in this picture, I installed all the devices first. However, I did not know which cable to connect them with.I found the answers on the internet.

After that I used **Straight-through Cable** to connect some devices like; Switch - Cisco 2960-24 TT,IP Telephone,Server,PC, Laptop, Printer, Tablet,IOT devices.
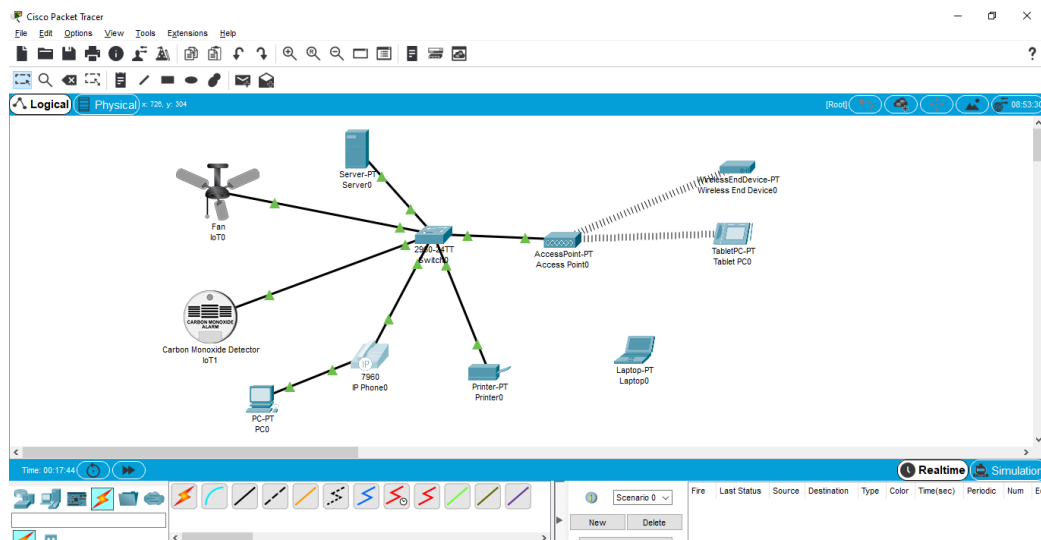
After connecting the cables, I made a IP assignment to each device Since some devices need to be configured for wireless, I made the wireless settings for devices such as Laptop,Access Point ,Tablet PC and Wireless EndDevice-PT. I set Modem Authentication and gave the SSID address is **wifi** and Web Key value is **1234567890**. and as a result, I provided the connection between my wireless devices.
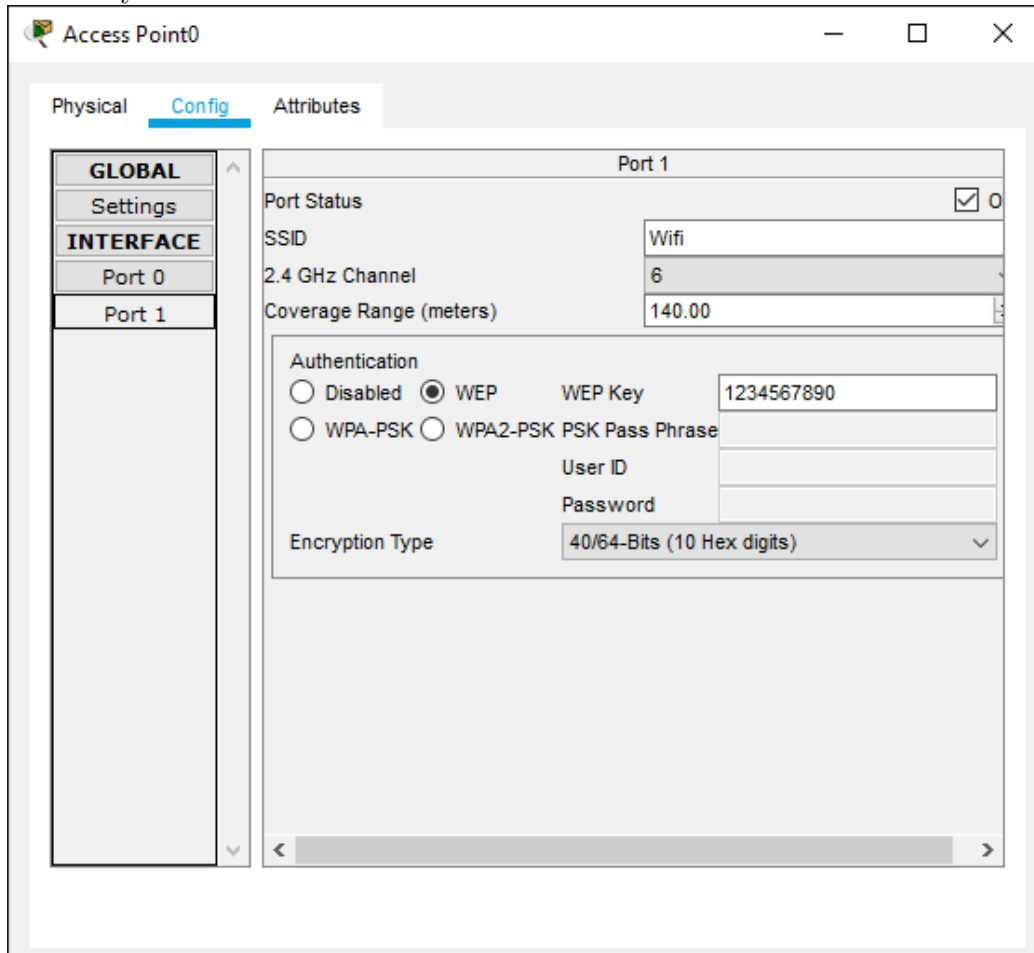
This is the connection scheme from my all devices
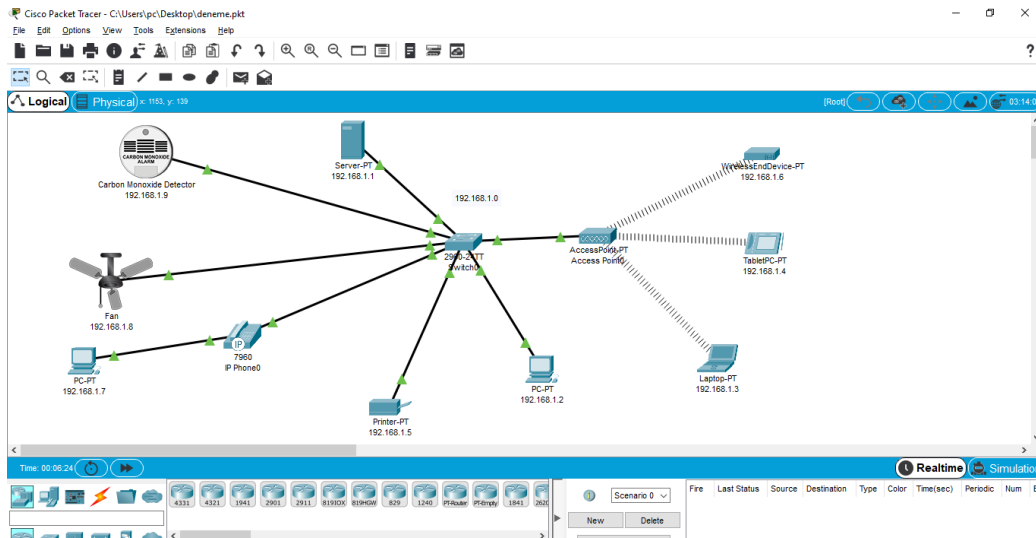
2.3 Give static IP addresses to devices from 192.168.1.0 255.255.0 network. Fill the following table with the values in your simulation:

In this task, I gave static IP addresses to each device according to 192.168.1.0 and 255.255.255.0 addresses.Since the last number values should be 0-255 when I am giving IP addresses network devices.

I added the IP values and mac values that I created to the table below.

Device	IP Address	Mac Address
PC0	192.168.1.2	000A.F36C.34E0
PC1	192.168.1.7	0060.3E1A.02A3
Server0	192.168.1.1	00E0.A312.AAE9
Carbon Monoxide Detector	192.168.1.9	00E0.A362.B1E4
Fan	192.168.1.8	0060.3E43.BA41
Printer	192.168.1.5	00D0.D369.4491
Laptop	192.168.1.3	0001.43C3.A6A6
TabletPC-PT	192.168.1.4	00E0.8F75.D264
WirelessEndDevice-PT	192.168.1.6	0001.630C.B111

2.4 Ensure that these devices can make a communication between:
a)Physical Layer: Ensure the lines are UP

6

b)Network Layer: Test IP based connection

Firstly The physical layer defines the means of transmitting raw bits over a physical data link connecting network nodes. I did the check on the **physical layer** like this; I connected total 7 devices and the Link values of these devices are UP by I controlled them with the switch.

I showed this below

192.168.1.0

192.168.1.6

AccessPoint PT

Port	Link	VLAN	IP Address	MAC Address
FastEthernet0/1	Up	1	--	00D0.F1
FastEthernet0/2	Up	1	--	00D0.F1
FastEthernet0/3	Up	1	--	00D0.F1
FastEthernet0/4	Up	1	--	00D0.F1
FastEthernet0/5	Up	1	--	00D0.F1
FastEthernet0/6	Up	1	--	00D0.F1
FastEthernet0/7	Up	1	--	00D0.FF
FastEthernet0/8	Down	1	--	00D0.FF
FastEthernet0/9	Down	1	--	00D0.FF
FastEthernet0/10	Down	1	--	00D0.FF
FastEthernet0/11	Down	1	--	00D0.FF
FastEthernet0/12	Down	1	--	00D0.FF
FastEthernet0/13	Down	1	--	00D0.FF
FastEthernet0/14	Down	1	--	00D0.FF
FastEthernet0/15	Down	1	--	00D0.FF
FastEthernet0/16	Down	1	--	00D0.FF
FastEthernet0/17	Down	1	--	00D0.FF
FastEthernet0/18	Down	1	--	00D0.FF
FastEthernet0/19	Down	1	--	00D0.FF
FastEthernet0/20	Down	1	--	00D0.FF
FastEthernet0/21	Down	1	--	00D0.FF
FastEthernet0/22	Down	1	--	00D0.FF
FastEthernet0/23	Down	1	--	00D0.FF
FastEthernet0/24	Down	1	--	00D0.FF
GigabitEthernet0/1	Down	1	--	00D0.FF
GigabitEthernet0/2	Down	1	--	00D0.FF
Vlan1	Down	1	<not set>	0060.5C7

Hostname: Switch

Physical Location: Intercity, Home City, Corporate Office, Mai

(I did not reduce the size of the picture because I did not want to reduce the

image quality.)
Secondly, The network layer is responsible for packet forwarding including routing through intermediate routers. I used the PING command while testing this layer. I send ping all my connected devices.If there is a return, it means that the connection has been made or not, it means that the connection has not been made.

3. Conclusion

As a result, I learned a lot while doing this homework.I practiced the information what I learned in the Basic Network lesson using Cisco Packet Tracer simulation.I learned that different cable types have different properties and their effect on the network in this feature.I learned how to test devices and the PING command is very important for testing.