COMPUTER NETWORKS

Emre Taşkın
emretaskin2@posta.mu.edu.tr

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Abstract

In this assignment, I handled with IPv4 and IPv6 subnetting, ip addressing for devices, configuration for router and servers web and dns server configuration.

1 Introduction

While doing assignments I used Packet Tracer version 7.3.1.0362 . First, I created the NW Topology which is given by our Constructor. When I cabled, the Routers connections were red. Then I changed Port Status to On from config. That fixed the problem.

2 Assignments

To complete the Assignment I made 5 steps. Now I will explain them. The Screeshot of My Topology

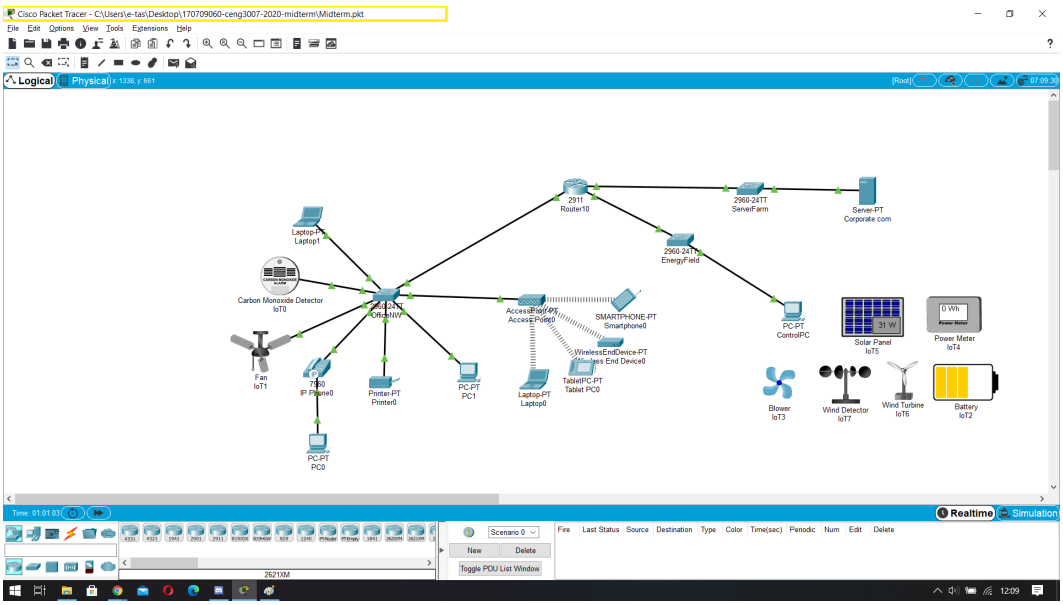

Figure 1

2.1 Assignment A (SUBNETTING)

I used lecture notes to do this part. I learned IPv4 Subnetting from Module 11 and IPv6 Subnetting from Module 12. Then I filled the table with what I learned.

	IP Need (Max)	IPV4 Nw	IPV4 Prefix	IPv6 NW	IPv6 Prefix
FULL		200.100.10.0	/24	2001:DB8:ACAD::	/48
OFFICE NW	100	200.100.10.0	/25	2001:db8:acad:1::	/64
Alternative Energy NW	50	200.100.10.128	/26	2001:db8:acad:2::	/64
SERVER NW	20	200.100.10.192	/27	2001:db8:acad:3::	/64

Figure 2

2.2 Assignment B (IP Address Assignment)

In this part, I assigned IPv4 adresses statically. For IPv6 address assignment I used DHCP except Server's IPv6. I assigned Server's IPv6 as 2001:DB8:ACAD:3::1/64.

Device	IPV4 Address	IPv6 Address
Server	200.100.10.194/27	2001:DB8:ACAD:3::1/64
PC0	200.100.10.10/25	2001:DB8:ACAD:1:201:C9FF:FEEB:372C/64
ControlPC	200.100.10.130/26	2001:DB8:ACAD:2:202:4AFF:FECD:7D53/64

Figure 3

Here is the code of how did I use DHCP to assign IPv6 of devices auto. I used the same code system for every interface on router

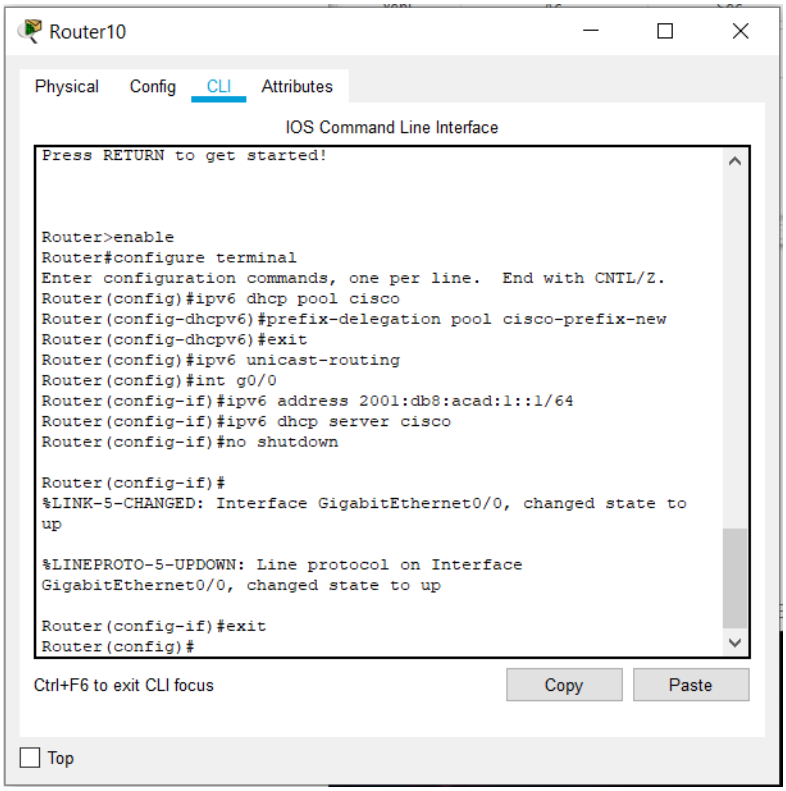

Figure 4

2.3 Assignment C (Router IOS Config)

Here I used the codes which shows IP addresses of my router, *show ip interface brief* for IPv4 and *show ipv6 interface brief* for IPv6 To show my network is running in dual stack. My enable password is netseclab.

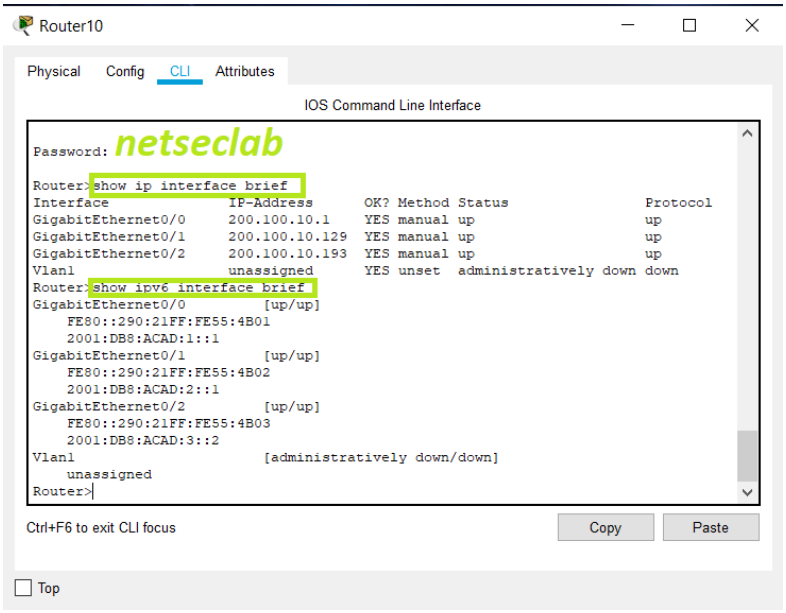

Figure 5

Here is the code of how did I set password and telnet communication. I learned this part from module 10 of our lectures.

```
Router>enable
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#enable secret netseclab
Router(config)#line console 0
Router(config-line)#password netseclab
Router(config-line)#login
Router(config-line)#exit
Router(config)#line vty 0 4
Router(config-line)#password netseclab
Router(config-line)#login
Router(config-line)#transport input telnet
Router(config-line)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

Figure 6

Telnet Test from PC0

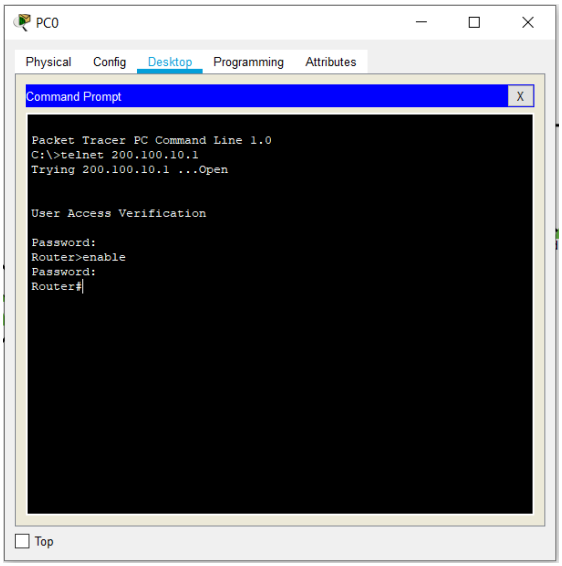

Figure 7

2.4 Assignment D (IP Connectivity Control)

To make an IP Connectivity between networks, I set default gateaways to Statically IP assigned devices. PC0 needed Default Gateaway to IPv4 and Server needed Default Gateaway to IPv6. After setting, PC0 was able to ping the Server.

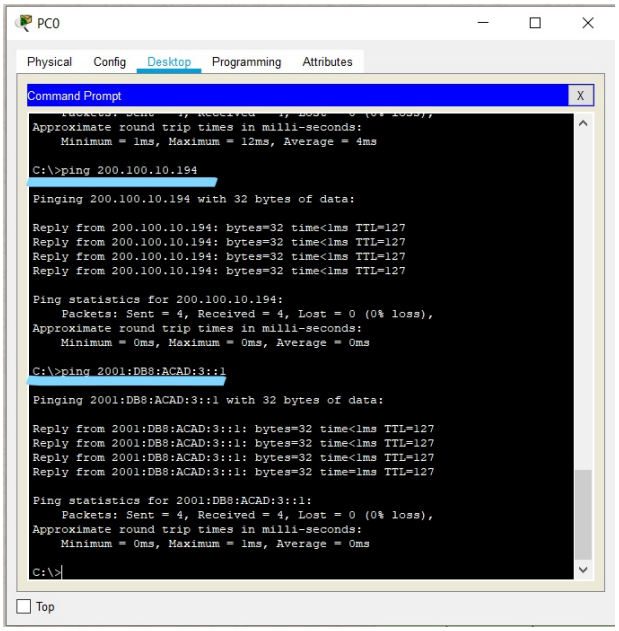

Figure 8

2.5 Assignment E (Server NW Services)

First I enabled the Web Server. Then I used DNS Service of Server. I made a website as corporate.com .

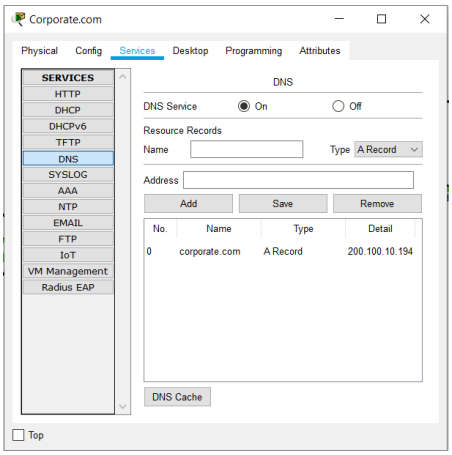

Figure 9

Then I applied the hint. I gave dns server IP on the PC0 nw configuration.

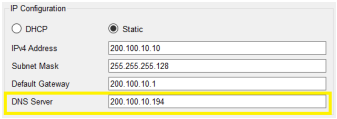

Figure 10

Finally I reached the web server corporate.com from PC0.

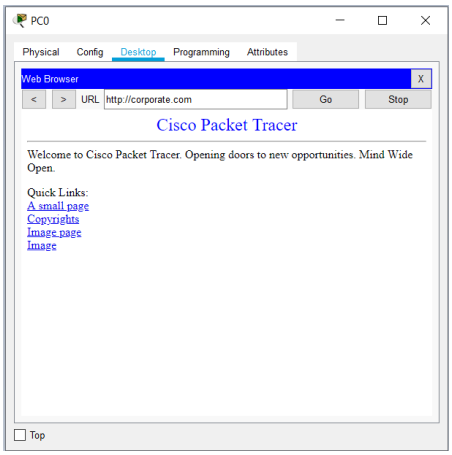

Figure 11

3 Conclusion

In conclusion I learned creating a topology with different NWs, Subnetting IPv4 and IPv6 addresses, Assigning static and automatic IP addresses to devices, Router configurations, usage of default gateaway and using Web Server and DNS Server services of Server from a device in different network. Lecture Notes was very helpful and informative to doing these assignments. I feel more confident about computer networks than before. Working with packet tracer was fun and very informative.