

WORKSHOP 1: PACKET TRACER BASICS REPORT

PRESENTED BY:

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COMPUTER NETWORKS I

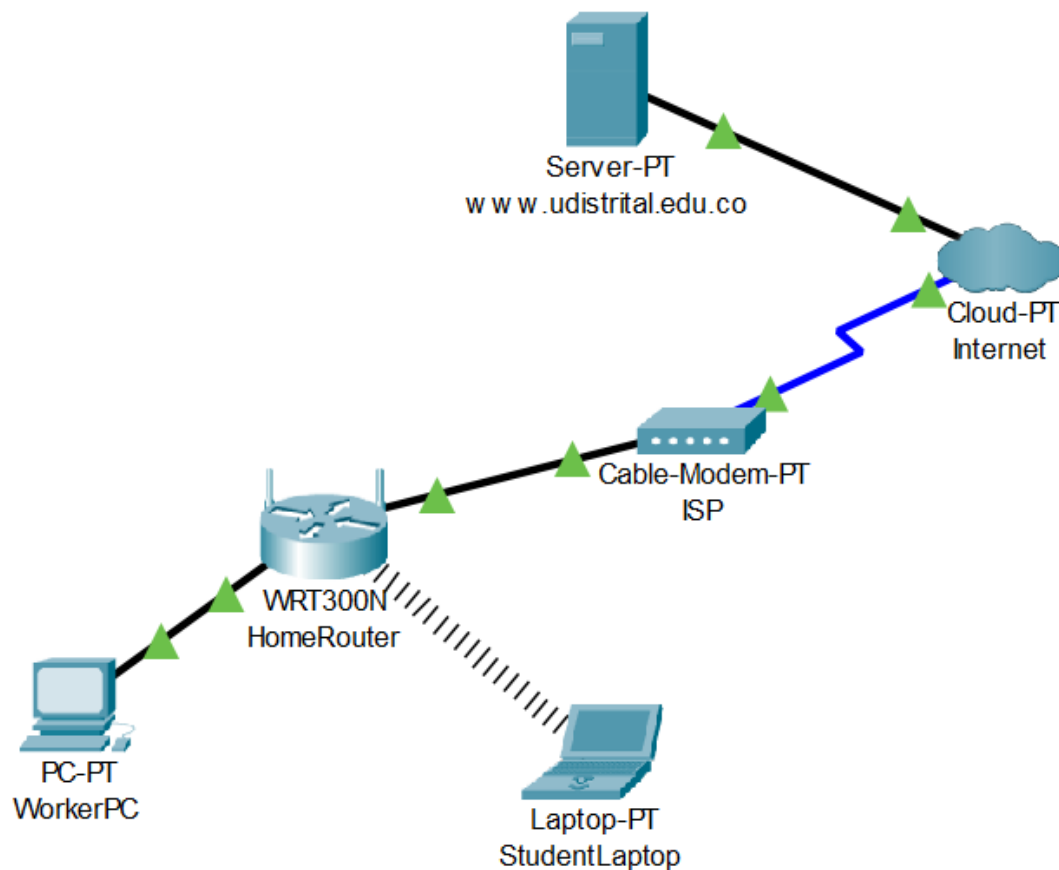
UNIVERSIDAD DISTRITAL FRANCISCO JOSÉ DE CALDAS

FACULTY OF ENGINEERING

SYSTEMS ENGINEERING

BOGOTÁ D.C. 2024

The purpose of this workshop is to build a basic network which is composed by a server for the Universidad Distrital Francisco José de Caldas, which will host a homepage for the university. This server must be connected to the cloud, to which the Internet Service Provider is also connected. In addition, the ISP must offer the connection service for a home through a router, to which we will connect, making it possible to access the web page of the university from different local devices with both direct and wireless connection. The network design made in the Cisco Packet Tracer software is:



The first device to add is the Server, that has these settings:

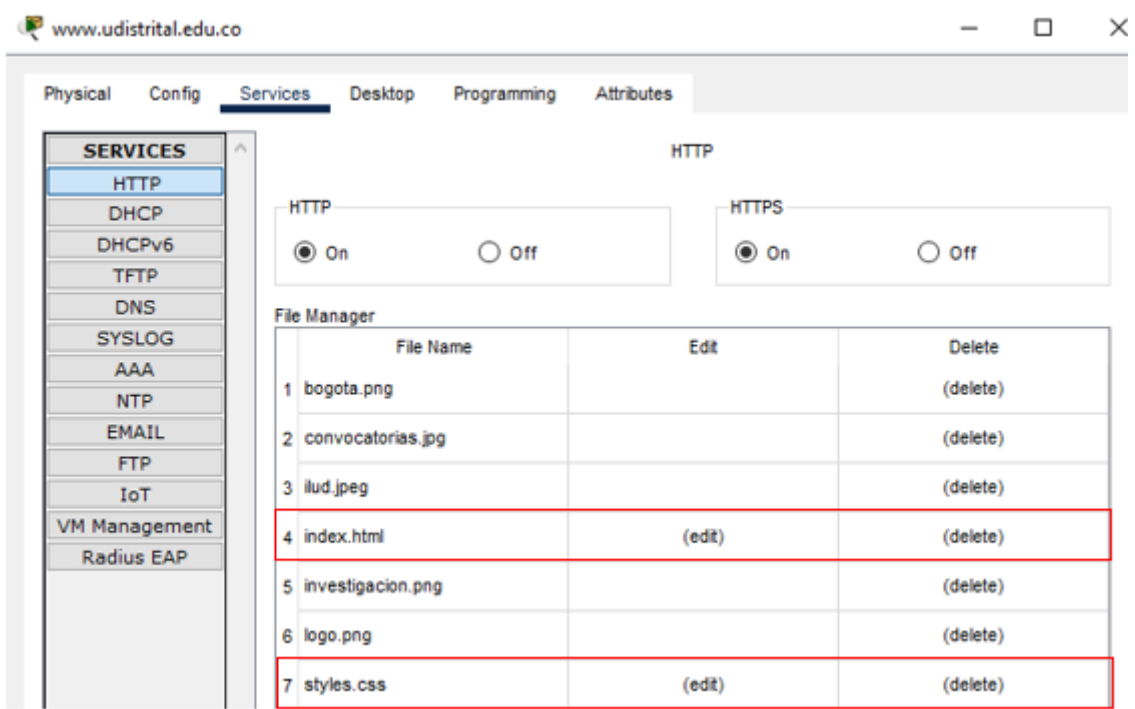
The name of the server:

Display Name	www.udistrital.edu.co
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Static IP Configuration:

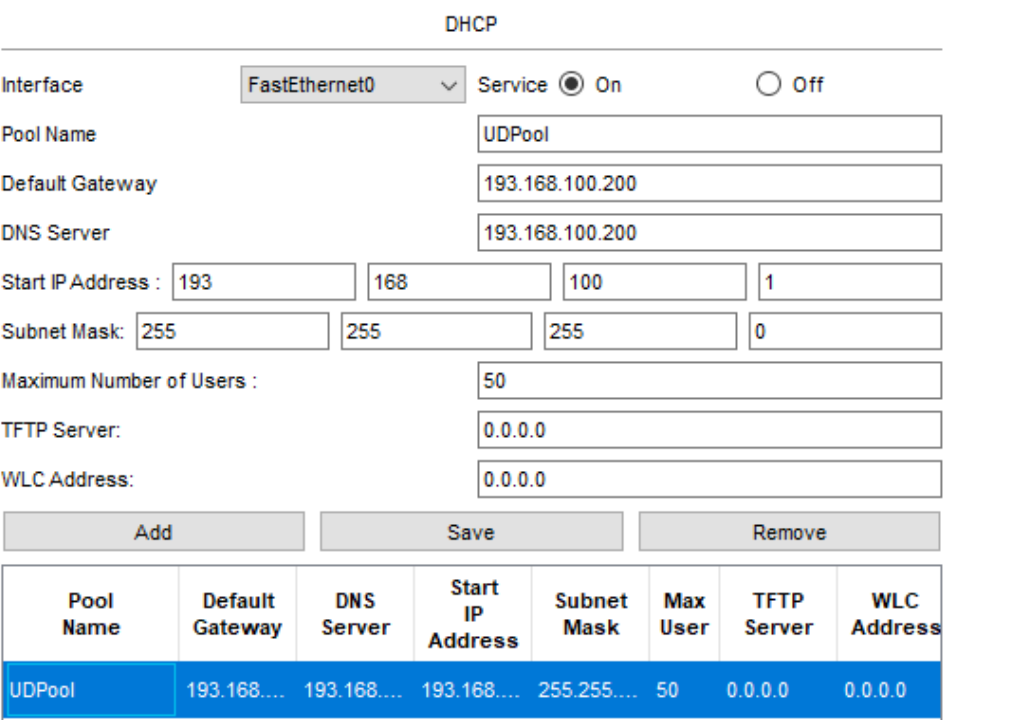
IP Configuration	
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	193.168.100.200
Subnet Mask	255.255.255.0
Default Gateway	193.168.100.1
DNS Server	193.168.100.200

In HTTP Services Configuration I'm going to add the HTML file and CSS file that composes the webpage of the university that I made:



As we can see in the file manager, there is the .html file and the .css file, but there are some image type files, I tried to use online images source to avoid having to download the images, but Packet Tracer do not recognize link sources for images, so I decided to add the images in the local file manager.

After adding the webpage and the files, we should add a new pool in DHCP services, and verify that the service is on, the values of the pool called "UDPool" are:



The next step is to add a new rule in DNS services, with these values:

DNS

DNS Service ☒ On ☐ Off

Resource Records

Name Type A Record ▼

Address

Add Save Remove

No.	Name	Type	Detail
0	www.udistrital.edu.co	A Record	193.168.100.200

After finishing the configuration of the server, we need to connect the server to the cloud named Internet; the cloud needs to have the cable relation from Coaxial7 to Ethernet6:

Cable

Coaxial7 <-> Ethernet6

Port Port

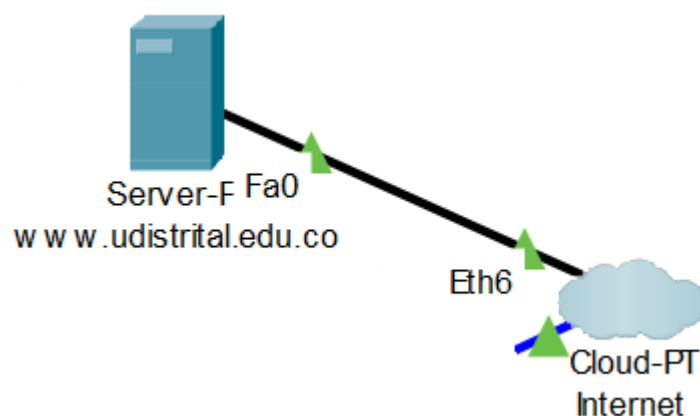
From Port	To Port
Coaxial7	Ethernet6

To make that relation possible we need to configure Ethernet and put it into Cable mode:

Ethernet6

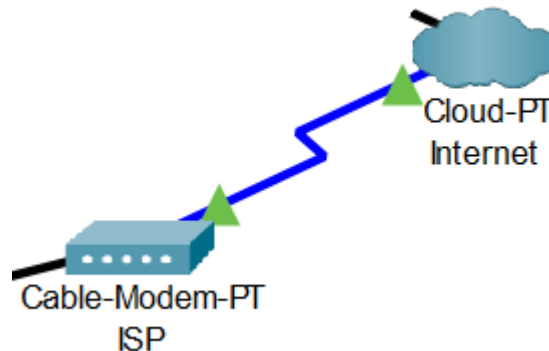
Provider Network ☒ Cable ☐ DSL

After configuring Internet, we connect it with the server:



To make that connection we use “Copper Straight-Through” that is a twisted pair cable that we connect from Ethernet6 of the cloud to FastEthernet0/0 of the server.

Now we need to connect the Internet Service Provider to Internet with a Cable-Modem-PT with the name ISP:



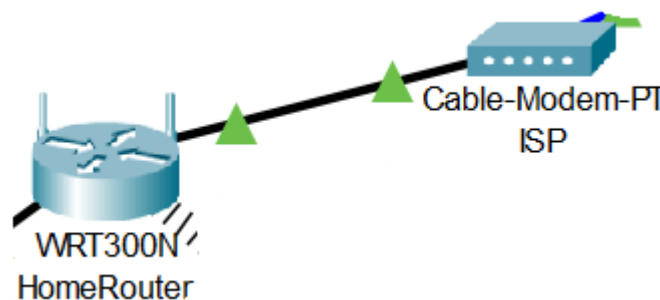
We connect it from Port0 of ISP to Coaxial7 of Internet using a Coaxial Cable, that we use for external connections.

Now we add a wireless router that we are going to name HomeRouter, I picked WRT300N because is the one that matches the type of values requested in the workshop the most, the values are:

LAN Settings	
IP Configuration	
IPv4 Address	192.168.0.1
Subnet Mask	255.255.255.0

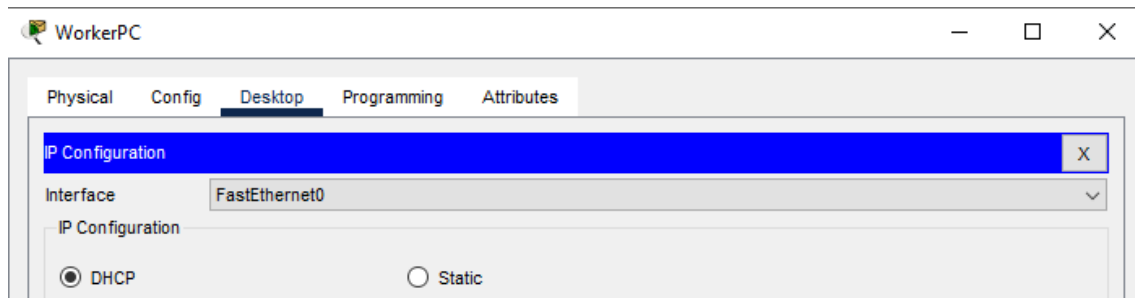
Wireless Settings	
SSID	UD_Invitados
2.4 GHz Channel	6 - 2.437GHz
Coverage Range (meters)	20.00

Now we connect the HomeRouter to the ISP using twisted Pair cable:

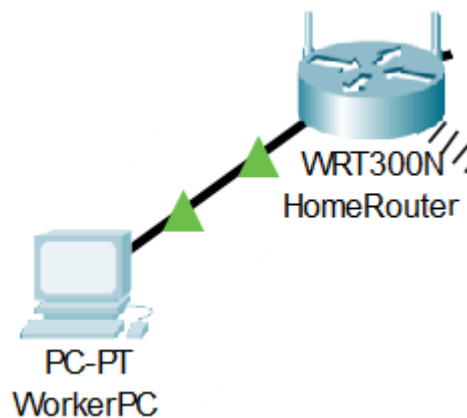


Finally, we have to add two End Devices, a wireless one that is a Laptop-PT, that we are going to name StudentLaptop; and, a PC-PT called WorkerPC.

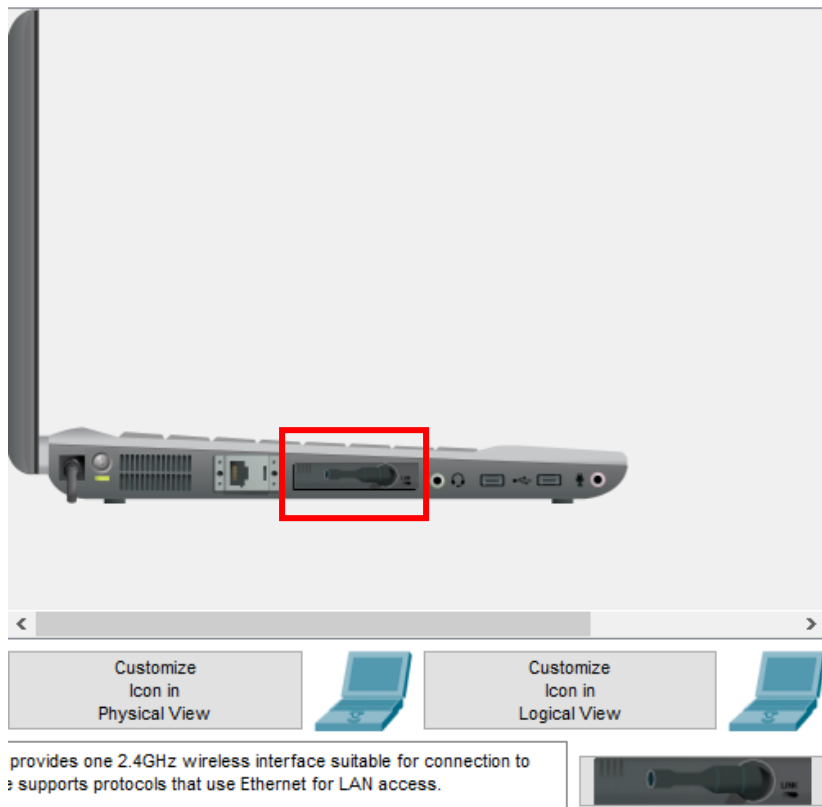
WorkerPC has an automatic IP Configuration that the HomeRouter is going to configure, to do that we put DHCP in the IP Configuration of the device:



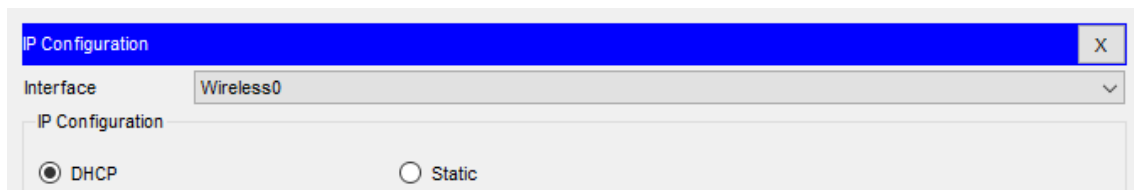
To connect WorkerPC with the HomeRouter, we use Copper Straight-Through cable (Twisted-Pair cable) from FastEthernet port of the WorkerPC and Ethernet port of the HomeRouter.



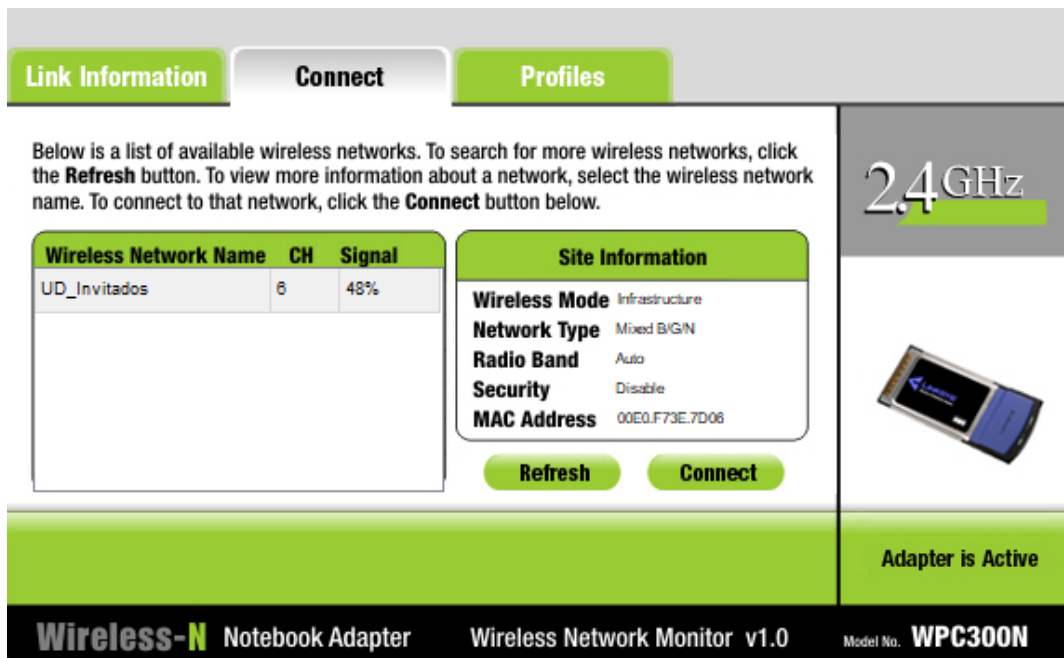
For StudentLaptop we want to connect it to HomeRouter with the wireless option, to do that the end device needs a wireless interface, so we turn off the laptop and add a WPC300N, the antenna module required:



In the IP Configuration we select DHCP:



And we connect the StudentLaptop with the wireless Network (UD_Invitados):

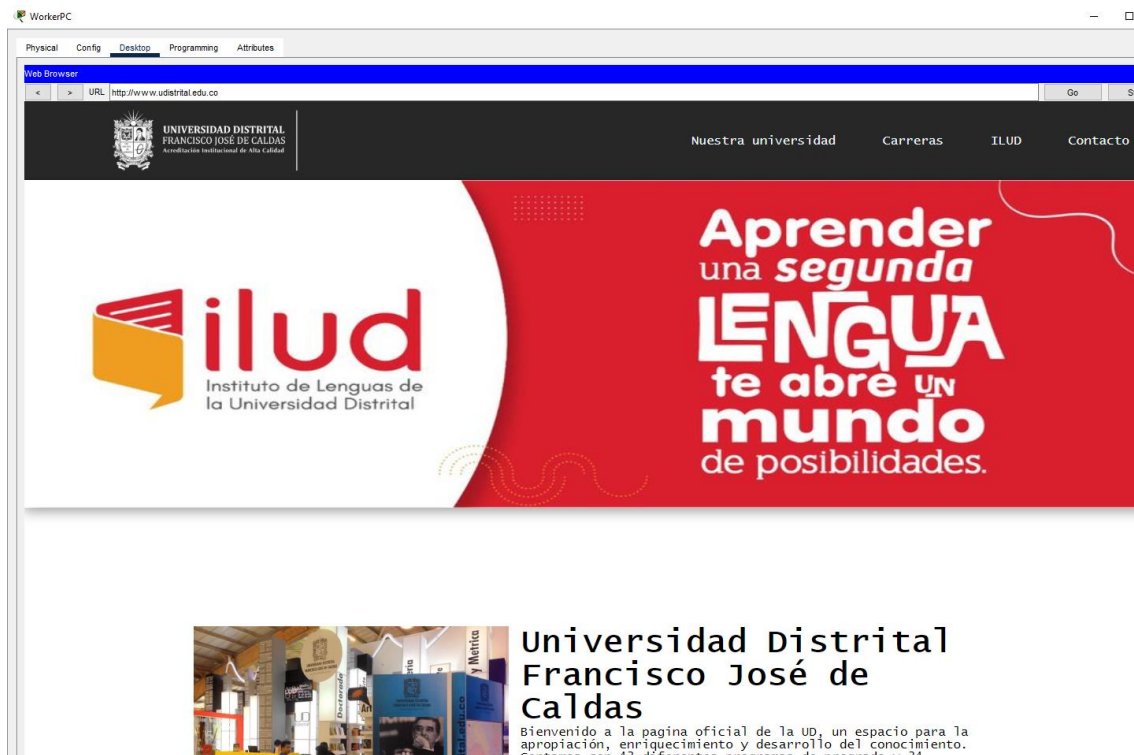


TEST RESULTS:

We are going to access a web browser with the device StudentLaptop and then enter to the responsive website created:



Same test performed with WorkerPC:



The webpage loaded correctly, the test in both devices shows interesting results:

1. The webpage loads faster in the WorkerPC, probably because of the direct connection used through the cable, while one is directly connected to HomeRouter, the other one uses Wireless Connection, where the HomeRouter has a Coverage Range of 20 meters and 48% of signal showed in the wireless network monitor.
2. The connection is still a low for both devices, so we need to wait more than usual to load all the images of the website.
3. The CSS media queries and JavaScript functions work properly on Packet Tracer, making it possible to make the website responsive and create sliders like the one showed in the website created.