Getting Started with Cisco Packet Tracer

Below is a tutorial that should help students get acquainted with Cisco's Packet Tracer. Packet Tracer is a network configuration simulation tool that should help students have a more hands-on experience with networking.

Downloading Packet Tracer

Please visit https://www.netacad.com/about-networking-academy/packet-tracer/ and sign up for the Networking Academy. Click "Enroll to download Packet Tracer." Please note that Packet Tracer is available on the classroom computers. If you'd like to download it to your PC, after you create an account, you can download the free version of Packet Tracer. Once you download Packet Tracer, you may be asked to complete the Packet Tracer 101 course. You are encouraged to do this on your own, but it is *not required*.

Once you download Packet Tracer please open it and complete the steps below.

Creating a Local Area Network (LAN)

- In the bottom left corner, there are several icons which you can use to select different parts of a network. For example, you can select Routers, Switches, Hubs, End Devices, etc.
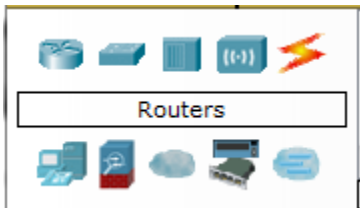
- Please select End Devices and choose Generic PC (PC-PT) and drag it into the workspace
- Then select Switches, grab the 2960 switch and place it to the right of the Generic PC in the workspace
- Then select End Devices and select Server-PT and drag it to the right of your Switch. Your screen should now look like this:
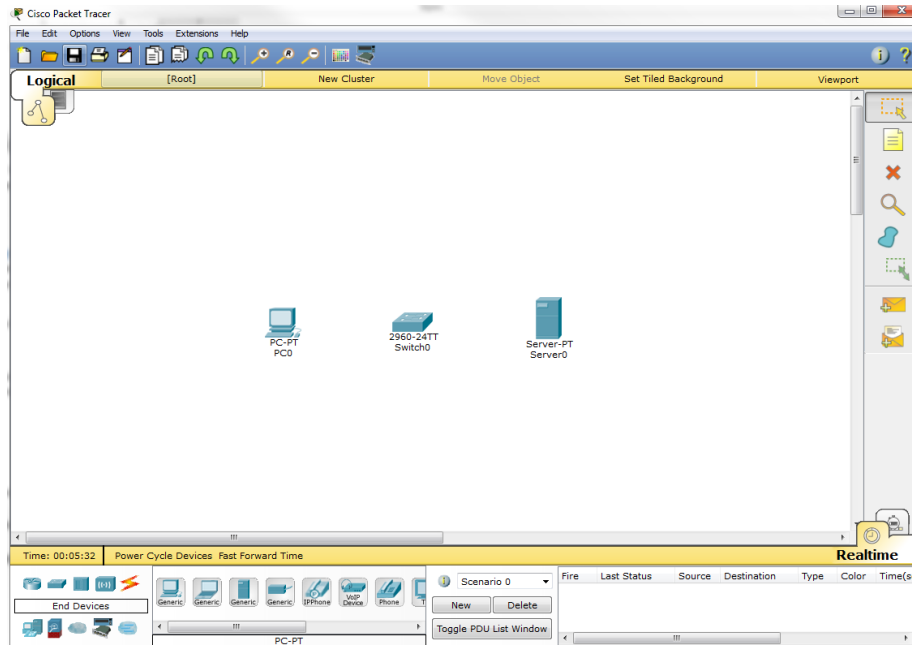
- Now we want to connect the equipment together and run some tests between the PC Client and the Server.

Connecting the Equipment

- To connect the PC and the Switch, select the Connections icon ⚡ and select Copper Straight Through.
- Now click the PC-PT PC0 computer in your workspace, select FastEthernet and click on the Switch and attach it to the first Ethernet port.
- Using the Copper Straight Through cable connect the Server to the Switch using the second Ethernet port.
- Now let's give the equipment some IP Addresses so that they can communicate with each other.

Assigning the IP Addresses

- Let's give the Server an IP Address.
- Click the Server icon. A window should pop up. Now click Config > FastEthernet.
- In the textbox next to IP Address please enter: 192.168.1.254 (this is a pretty standard IP address for a server on a LAN)
- Then click into the textbox next to Subnet Mask and the number 255.255.255.0 should pop-up. The IP Address is set. The configuration for the Server should look like this:
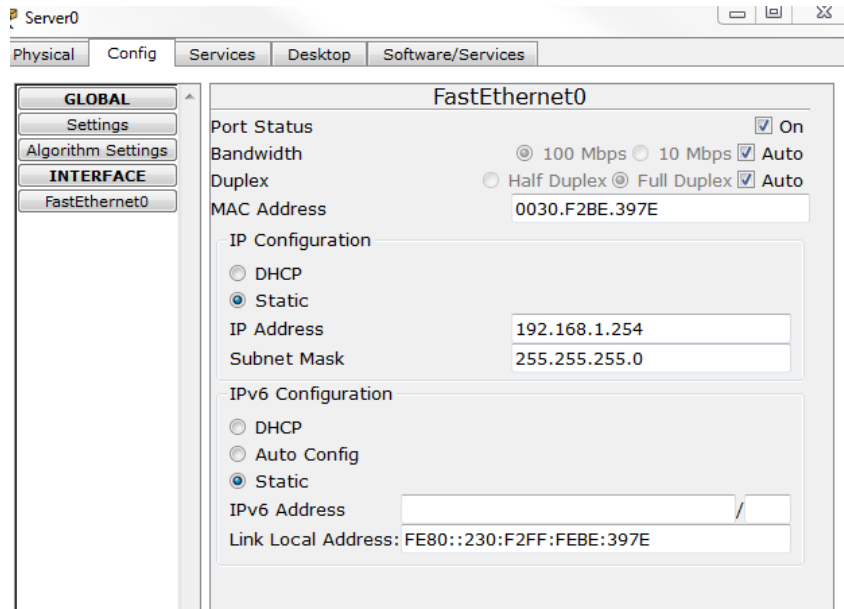
- X out of the window and configure the PC with the IP Address of 192.168.1.100 (same process as the Server just with a different IP Address)
- Now that the PC and the Server have IP Addresses, we should be able to Ping a connection from the PC to the Server

Pinging (testing the connection from one device to another)

- Click on the PC > Go to Desktop > Command Prompt
- Type in the command: ping 192.168.1.254 (remember this is the IP Address of the Server we just configured)
- You should see the following results. This indicates that the PC can now establish a connection through the Switch to the Server.

- Now let's explore some of the services the Server has to offer network administrators.

Exploring the Services and Creating a user for the FTP Service

- Click on the Server in your workspace and click on Services
- Please take notice of all the services the Server offers (HTTP, DHCP, EMAIL, FTP, etc.)
- Let's create a user for the FTP service

- Under Services, Click FTP. Notice there is already a user named *cisco* and the password of *cisco*, and that the user has the permission of RWDNL (read, write, delete, rename, and list).
- Let's create a new user
- In the Username textbox type *student* and in the Password textbook type *student*
- Give the student user the permissions Read and Write permissions
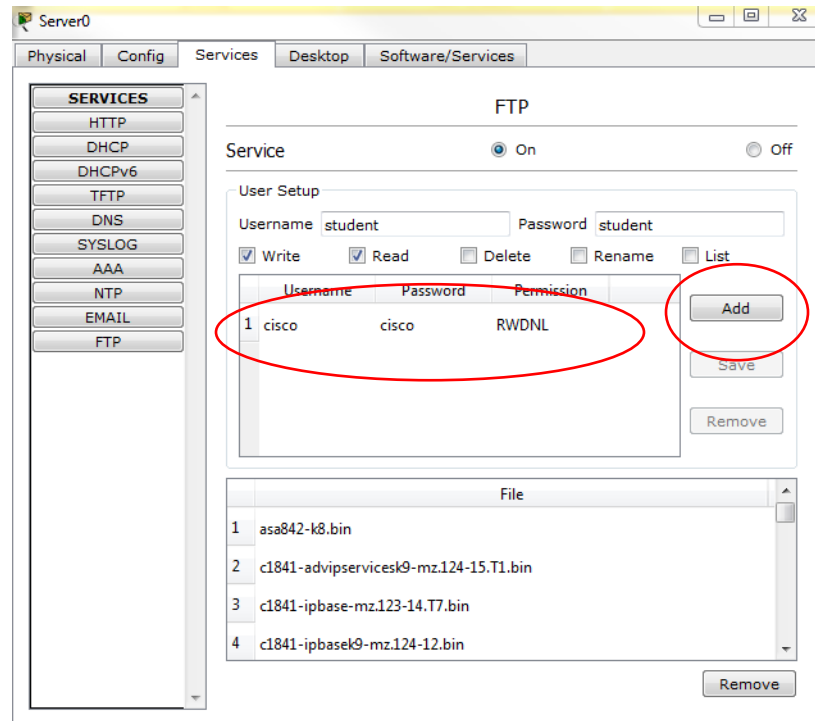
- Click Add. There should now be another user with the Username student and Password student.

	Username	Password	Permission
1	cisco	cisco	RWDNL
2	student	student	RW

- Also notice you can turn on and off the FTP service. This is just the tip of the iceberg when it comes to the power of Network Administrators
- Now let's test to see if the PC can communicate with some of the services offered by the Server

Testing the Services

- Let's test the Web Server.
- Click on PC and open the Web Browser (this is a fake web browser).
- Type in the server's IP address and click Go – Boom! You now see the web address
- Let's see if we can FTP into the Server
- From the PC click on the Command Prompt
- Type ftp 192.168.1.254 and hit enter
- Enter the username and password for the student

- You should now be logged in

```
PC>ftp 192.168.1.254
Trying to connect...192.168.1.254
Connected to 192.168.1.254
220- Welcome to PT Ftp server
Username:student
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>
```

- To log out of the FTP service in the command prompt type quit and hit enter
- Now let's expand the LAN to include a router

Adding a Wireless Router

- Click on Wireless Devices and add the WRT300N this is a real model of a router --
  (http://www.amazon.com/Cisco-Linksys-WRT300N-Wireless-N-Broadband-Router/dp/B000FDOWQK)
- Configure the router to have the IP Address of 192.168.1.1 (Under LAN Settings)
- Now let's symbolize the Internet
- Click on the WAN Emulation category and select the Cloud-PT cloud icon. Drag it onto the worksheet next to the router
- Your screen should look something like this:
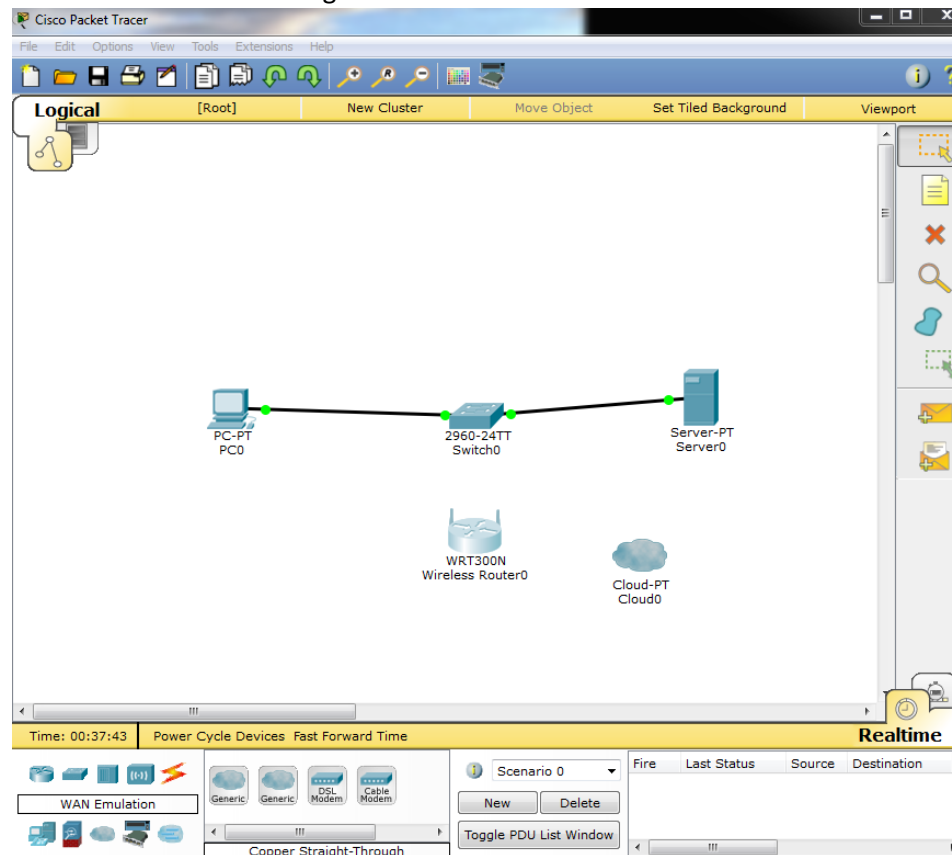
- Let's connect everything

- Grab a Copper Straight Through Cable and connect the Switch to the Router. Add the cable to the Router's first Ethernet Port
- Let's connect the Router to the Internet
- You can auto-choose your own type of cable by clicking the Automatically Choose Connection Type Icon under the Connections category (the lightning bolt). Click that icon then click on the Wireless Router and then click on the Cloud.
- If you hover over the Router you should notice that the cable is plugged in to the Internet port, not an Ethernet port
- You can also click on the Router, click on Physical, if you zoom in, you can notice that there are four Ethernet ports (yellow) and one ISP port (blue). The blue is the one that goes to your ISP

Pinging the Router

- Let's see if there is a connection from the PC to the router.
- Go to the PC, command prompt, and ping the router using the router's IP Address. You should see that there is a connection
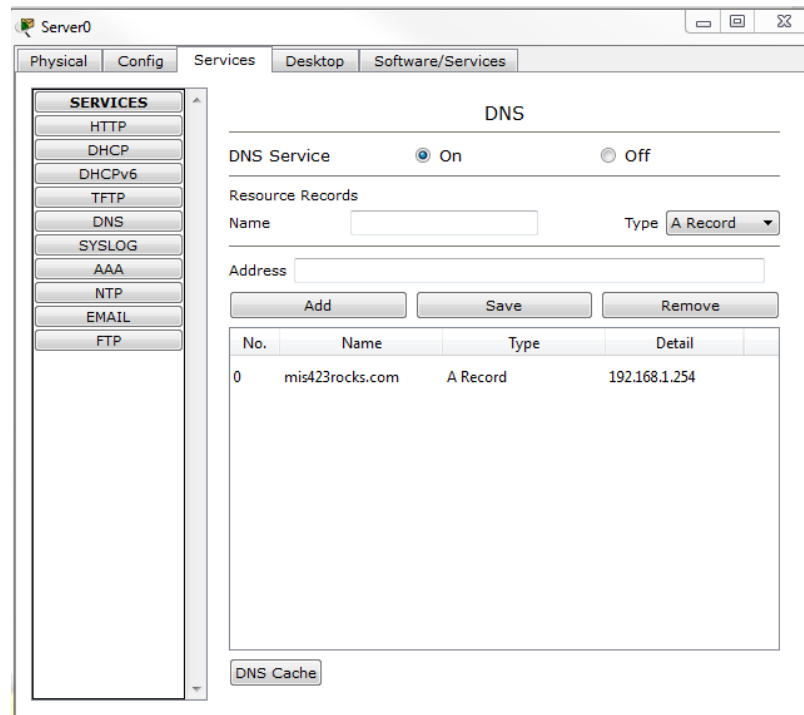
Creating the Default Gateway

- Usually there is only one Router per LAN so all traffic that exits the LAN goes through one Router and one Router only. Because of this, Network Administrators usually assign that router the term the 'Default Gateway' for each PC. Let's assign our Router to be the Default Gateway for our PC.
- Click on the PC and click on IP Configuration.
- Next to Default Gateway, assign the Router's IP Address as the Default Gateway (192.168.1.1)
- Now that Router is the Default Gateway for our PC, meaning that all traffic that exits the LAN goes through the Router with the IP Address 192.168.1.1.
- Let's keep adding to our network by adding some Services to the Server

Adding More Services

- Let's pretend we want to put a website on our server called MIS423rocks.com
- We have to setup a DNS Service on our Server so that we can access the website
- To do this, click on the Server in our Network
- First, we need to make sure that the Router is the Default Gateway
- Under Config, next to Gateway, type the Router's IP Address
- Let's mess around with the HTTP settings so we could see how to display the website on our local Server
- Click on Services, and Under HTTP > next to index.html click on (edit)
- Change the Code that says "<center>Cisco Packet Tracer</center> to read "<center>MIS 423 Rocks!</center>
- Under the <hr> code change Welcome to Cisco Packet Tracer to "Welcome to MIS 423 Rocks!"
- Basically you just edited the index.html page of the Server
- Now, go to DNS, turn it On.
- For name type MIS423rocks.com

- Give it the IP Address 192.168.1.254 (normally you would give it a public address but this is for our local Server)
- Your screen should look like this:

- So now we have a DNS server. On the local network, it will route the URL MIS423rocks.com to the home page for the Server. Let's see if it works.
- Click on PC
- Click on IP Configuration and assign the Router's IP Address the Default Gateway
- Under the DNS Server, put in the Server's IP Address
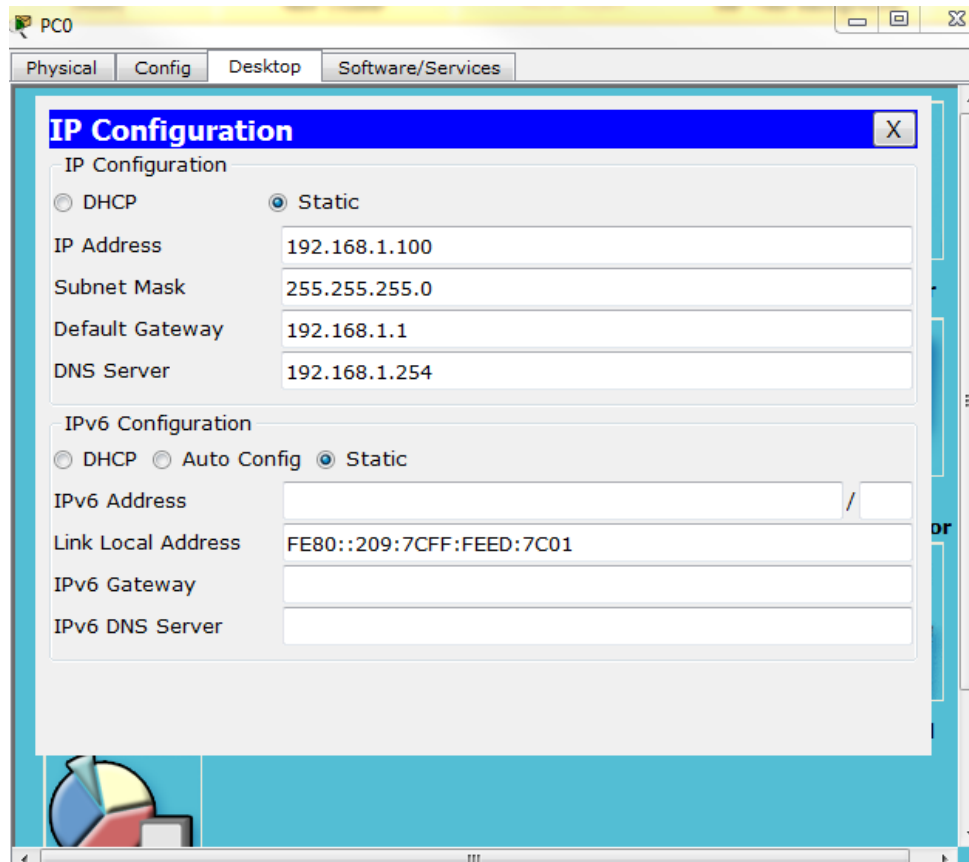
- Now open the Web Browser and type MIS 423 Rocks! You should see the homepage you just edited.

Overall Summary

Now that you have finished, please take a Screen Shot of your LAN and type a paragraph explaining what you have just accomplished by completing this tutorial.