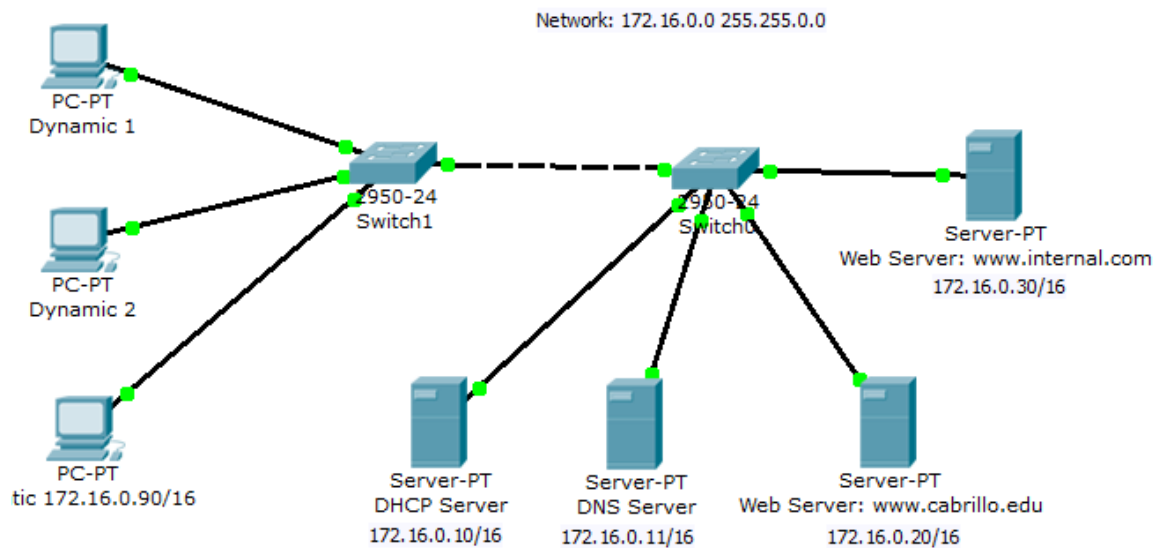


UNIVERSITY OF RUHUNA
DEPARTMENT OF ELECTRICAL AND INFORMATION ENGINEERING
EE 5302 – Computer Networks
Laboratory 3

Network Simulation for user Applications using Packet Tracer



This is an example of what your final topology should look like.

Instructions:

1) Start Packet Tracer using **Realtime** mode.

- Options -> Preferences
 - Enable “Show Link Lights”
 - Disable “Hide Device Label”

2) Configuring the DHCP Server

Add a server.

Global Settings:

- Change the Display Name to “**DHCP Server**”
- Set the Gateway to **172.16.0.1**

FastEthernet:

- Set the IP address to **172.16.0.10**
- Set the Subnet Mask to **255.255.0.0**

HTTP:

- Set HTTP Service and HTTPS Service to **Off**

DHCP:

- Set the Default Gateway to **172.16.0.1**
- Set the DNS Server to **172.16.0.11**
- Set the Start IP Address to **172.16.0.100**

DNS:

- Set the Service to **Off**

3) Configuring the DNS Server

Add a server.

Global Settings:

- Change the Display Name to **“DNS Server”**
- Set the Gateway to **172.16.0.1**

FastEthernet:

- Set the IP address to **172.16.0.11**
- Set the Subnet Mask to **255.255.0.0**

HTTP:

- Set HTTP Service and HTTPS Service to **Off**

DHCP:

- Set the Service to **Off**

DNS:

- Entering the **www.tsrb.edu** Domain Name
 - Enter for the Domain Name **www.tsrb.edu**
 - Enter for IP Address **172.16.0.20**
 - Click **Add**
- Entering the **www.internal.com** Domain Name
 - Enter for the Domain Name **www.internal.com**
 - Enter for IP Address **172.16.0.30**
 - Click **Add**

4) Configuring the www.tsrb.edu Web Server

Add a server.

Global Settings:

- Change the Display Name to “**Web Server: www.tsrb.edu**”
- Set the Gateway to **172.16.0.1**

FastEthernet:

- Set the IP address to **172.16.0.20**
- Set the Subnet Mask to **255.255.0.0**

DHCP:

- Set the Service to **Off**

DNS:

- Set the Service to **Off**

HTTP

- Change the sentence, “<hr>Welcome to Packet Tracer 5.0, the best thing since..... Packet Tracer 4.0.” to “<hr> Welcome to Tsrb's public web page!”
You may add other information as well.

5) Configuring the www.internal.com Web Server

Add a server.

Global Settings:

- Change the Display Name to “**Web Server: www.internal.com**”
- Set the Gateway to **172.16.0.1**

FastEthernet:

- Set the IP address to **172.16.0.30**
- Set the Subnet Mask to **255.255.0.0**

DHCP:

- Set the Service to **Off**

DNS:

- Set the Service to **Off**

HTTP

- Change the sentence, “<hr>Welcome to Packet Tracer 5.0, the best thing since..... Packet Tracer 4.0.” to “<hr> This is the corporate internal network!” You may add other information as well.

6) Configure Two Client Computers using DHCP

Add two client computers.

Global Settings:

- Change the Display Names to “**Dynamic 1**” and to “**Dynamic 2**” respectively
- Set the Gateway/DNS to **DHCP**

FastEthernet:

- Set the IP Configuration to **DHCP**

7) Configure One Client Computers using Static IP Addressing

Add two client computers.

Global Settings:

- Change the Display Name to “**Static**”
- Set the Gateway/DNS to **Static**
 - Set Gateway to **172.16.0.1**
 - Set the DNS Server to **172.16.0.11**

FastEthernet:

- Be sure the configuration is set to **Static**
- Set the IP address to **172.16.0.90**
- Set the Subnet Mask to **255.255.0.0**

8) Adding switches

- Add two switches.
- Connect the servers to one switch using a straight-through cable.
- Connect the client computers to the other switch using a straight-through cable.
- Interconnect the two switches using a crossover cable.

9) Verify connectivity

- Ping (ICMP)
 - From a client computer use the Desktop Command prompt to ping the other client computers and the servers.
 - Example: From the Dynamic 1 client, C> **ping 172.16.0.20**

- The first one or two pings may fail, but you should receive a reply on the later pings. This is due to the ping timing out while the ARP process takes place (later).
- Web Browser (HTTP)
 - On the client computers use the Desktop Web Browser, enter the URLs of the Web Servers `www.tsrb.edu` and `www.internal.com`.
 - You should see the web pages that you created on these servers.

10) Using Simulation Mode

Click on Simulation.

Note: To reset a simulation, click on “Reset Simulation”

Click on Edit Filters

- Choose **Show All/None** so that all the boxes (protocols) are unchecked.
- Select (check) the following protocols: **DHCP, ICMP, HTTP, DNS**.

Web Browser (HTTP)

- On the client computers use the Desktop Web Browser, enter the URLs of the Web Servers `www.tsrb.edu` or `www.internal.com`.
- Click on **Auto Capture/Play** (automatically forwards the packets) or **Capture Forward** (must keep clicking to advance the packets)

DHCP

- Reset the simulation by clicking on “Reset Simulation”
- To view DHCP, on one of the “Dynamic” client computers using DHCP go to the Desktop Command prompt.
- To have the client computer ask for new IP address and other information from the DHCP server, enter the command: `C> ipconfig /renew`