Hands-on A3: Packet Tracer Step-by-Step Guide

Follow these steps to set up a simple firewall:

PART 1

1. Start Packet Tracer.
2. Take few minutes to become familiar with the interface. Your lecturer will explain you important parts of the interface.
3. Click on **Switches -> (2950-24)**. Then click on the topology area (centre). A Switch will appear (Switch0).
4. Click on **End Devices -> Generic** (PC-PT). Then click on the topology area. A PC will appear (PC0).
5. Click on **Connections -> Copper Straight-Through**.
    a. Click on PC0. Select **FastEthernet0**.
    b. Click on Switch. Select **FastEthernet0/1**.
    c. A link will appear between the hub and the PC. This is an Ethernet connection.
6. Similarly add another PC (**PC1**) and connect them to the Switch.
7. Click on PC0. You will see a window with 4 panes (Physical, Config, Desktop and Software/Services). You can switch on/off the pc and configure various software/hardware parameters through this window.
8. Click on **Desktop -> IP Configuration**
    a. Select '**Static**'
    b. Enter the IP Address 192.168.1.1
    c. Enter the sub-net mask 255.255.255.0
    d. Close the window
9. Similarly, set the IP addresses 192.168.1.2 to PC1.
10. Click on PC0
    a. Go to **Desktop -> Command Prompt**
    b. Type **ipconfig** end enter.
    c. You will see the IP configuration of the computer.
    d. Type **ping 192.168.1.2** and enter
    e. You will see echo replies from 192.168.1.2 (PC1).
    f. You have just tested the network connection between PC1 and PC2.
11. Similarly, tests the network connectivity from PC1 to PC1.
12. You have just implemented a simple network with 2 PCs.

PART 2

1. Click on **Routers**. Select Router (**1941**). Add it to the topology.
2. Click on **End Devices** again **-> Generic** (Server-PT). Add it to the topology. (Set IP: 192.168.2.1)
3. Connect **GigabitEthernet0/0** and **GigabitEthernet0/1** interfaces of the Router0 to Switch0 and Server0 respectively. (Note: use **Connections -> Copper Cross-Over** for connecting Router to Server).
4. Click on Router1 - Go to **Config**
    a. Click on **GigabitEthernet0/0**. Set the IP address to 192.168.1.254 and the subnet mast to 255.255.255.0 then Select '**On.**' This will bring up the router interface.
    b. Click on **GigabitEthernet0/1**. Set the IP address to 192.168.2.254 and the subnet mast to 255.255.255.0 then Select '**On**'
    c. You have just configured a router connected to two networks with the minimum required configuration.

PART5

1. Go to the command prompt of PC0.
    a. Can you ping to 192.168.1.254 (interface GigabitEthernet0/0 of the router)? ……..
    b. Can you ping to 192.168.2.1? If you cannot ping, what is the reason?
    ……..
    ……..
    c. Correct the above issue.

    d. Now check the connectivity of all networks (ping from PCs to Server and Vice versa)

PART6 – Setting Up **firewall** through Router0.

1. Go to **CLI** of Router1 and enter the following commands: (Press **ctrl+z**. You will see either **Router#** or **Router>** prompt.)

    Router>enable
    Router#config t
    Router(config)# access-list 101 permit tcp any any
    Router(config)#interface gig0/0
    Router(config-if)#ip access-group 101 in
    Router(config-if)#^Z
    Router#
2. **The same as 1**, give access permit so that only PC1 can ping the Server (send packet) using commands below:
    Go to **Config mode** and enter**:**
    access-list 1 permit 192.168.1.1 0.0.0.0 <- This is wildcard mask 0 is exact match - 1 is don't care
    Go to **interface gig0/0** and enter:
    ip access-group 1 in

3. You can see all access list by entering this command:
    Router#show access-list

4. Test whether you can ping the Server0 from PC0 and PC1?

5. **Well done**, you have just implemented a simple Firewall.