

CNT4703C – LAB 3

Local Area Network | Router on a Stick

Objective:

In this lab we will be learning about how to configure switches in a Cisco environment and will be creating a network with 5 devices: 3 PCs, a switch, and a router. This configuration can be referred to as a Local Area Network (LAN). The configuration includes 3 computers, connected to a switch (similar to the network configuration used in Lab 2). In this configuration a router has been added and will serve to manage the network using Layer 3 (IP addressing) and will be connected to the switch Access Layer (Hierarchical Design Model) to which we will be connecting the computers. In this document you will find the representative diagrams and IP tables we will use to create a LAN. Before you physically create this LAN in the lab, you are to model it in CISCO Packet Tracer like you did in Lab 2. Ensure you take screen shots of the completed model, as well as upload the Packet Tracer file.

A teaching assistant will be available to assist you during the lab.

Credit for this assignment will require:

- 1) Packet Tracer File: CNT4703C-Lab3-[full-name-of-student]
- 2) Screenshots of Packet Tracer Model
 - a. Network Topology (Logical)
 - b. Successful Ping from PC-to-PC
 - c. Successful Ping from Router to PC
- 3) Photos of Router/Switch/PC Configuration (if ONLINE, then within Packet Tracer).
 - a. Router Command Results
 - i. Show version
 - ii. Show run
 - iii. Show ip int brief
- 4) Answers to LAB 3 Questions (below)

LAB 3 Questions:

- 1) What Layer of the OSI Model does IP addressing take place?
- 2) What does DHCP stand for and how is DHCP different from static addressing?
- 3) What is the command to enter privileged mode on a CISCO router or switch?
- 4) What command or set of commands did you use to configure the interfaces on the Router and Switch?
- 5) Convert the subnet mask 255.255.255.0 to binary. a. How many hosts can be addressed in this subnet?

FIGURE 1.0 – NETWORK DIAGRAM / CISCO Packet Tracer



FIGURE 1.1 – INSERT STATS or TABLE

CISCO – Router / Interface	IPv4 – Address / Subnet
GigabitEthernet0/1	192.168.21.1/24

Equipment	Address	MASK	Access/Switchport	LAN
PC11	192.168.21.11	255.255.255.0	1	Yes
PC12	192.168.21.12	255.255.255.0	2	Yes
PC13	192.168.21.13	255.255.255.0	3	Yes

FIGURE 2.0 – EXAMPLE - Command List | SWITCH – at CISCO

****this guide is not comprehensive**

****consult CISCO documentation for further assistance**

Step 1: Enter Privilege Mode

```
[host]>
```

```
[host]>enable
```

Step 2: Display current configuration and switch information

```
[host]# show version
```

```
# show run
```

Step 3: Create/Configure hostname

```
[host]#Configure Terminal
```

```
[host](config)#hostname LAN-Switch
```

```
[host](config)#
```

Step 4: Enter configuration terminal / select interface to configure

```
[host]#config t
```

```
[host](config)#
```

```
#interface fa[0/?] *type the number of the interface you want to configure or
```

```
#int range fa[0/?-?] *type the range of interfaces you want to configure
```

```
[host](config-if)#
```

```
# switchport [mode] [type] (if configuring for Access Layer | type access)
```

Step 5: Write/Save Configuration changes

```
[host]#
```

```
#write memory
```

FIGURE 2.1 – EXAMPLE 2 / Command List | ROUTER

Step 1: Enter Privilege Mode

```
[host]>
```

```
[host]>enable
```

Step 2: Display current configuration and router information

```
[host]# show version
```

```
# show run
```

```
#show ip interface
```

```
or
```

```
#show ip interface brief
```

Step 3: Create/Configure hostname

```
[host]#configure terminal
[host](config)# #hostname LAN-Router
[host](config)#
```

Step 4: Enter configuration terminal / select interface to configure

```
[host]#config t
[host](config)#
                #int gi[0/?-?]
[host](config-if)#
                #ip address 192.168.21.1 255.255.255.0
                #no shutdown
                #exit
```

Step 5: Write/Save Configuration changes

```
[host]#
        #write memory
```