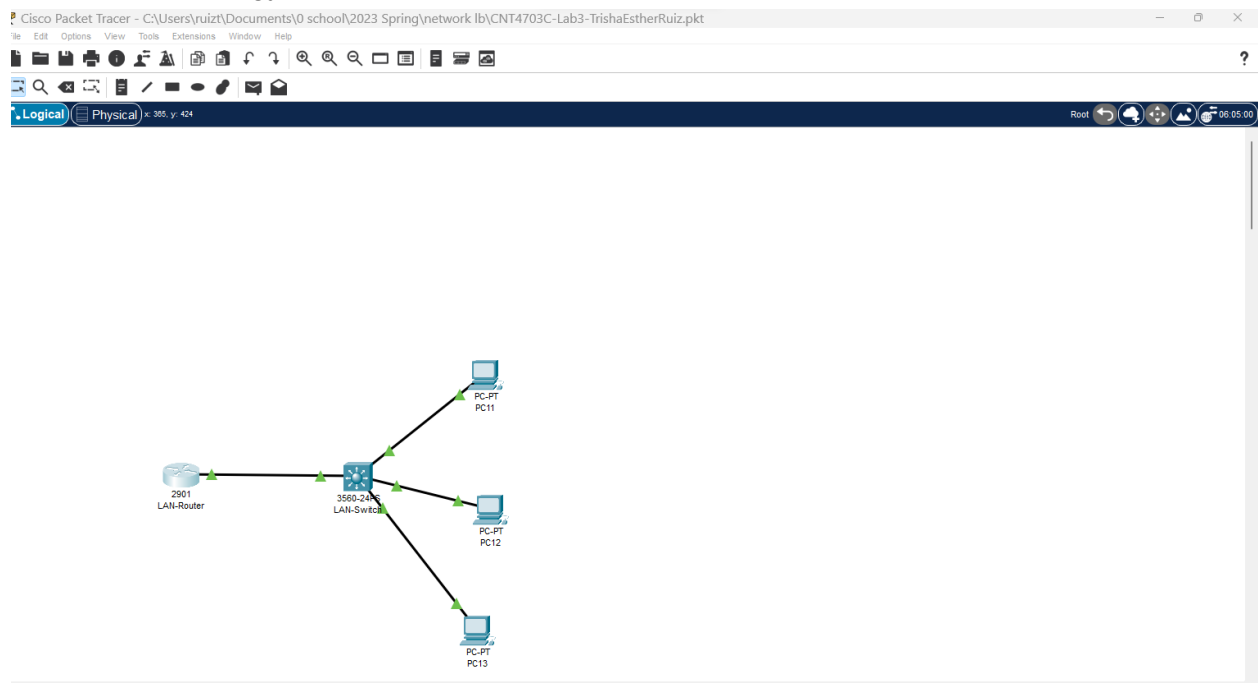


## 2.) Screenshots of Packet Tracer Model

### a.) Network Topology



### b.) c.) Successful Ping from PC-PC / Router to PC

The screenshot shows the Command Prompt of PC11. The user has performed three ping tests: one to the Router (192.168.21.1), one to PC12 (192.168.21.12), and one to PC13 (192.168.21.13). All tests were successful, with 4 packets sent and 4 received, resulting in 0% loss. The output is annotated with red handwritten text: "Router" for the first test, "PC12" for the second, and "PC13" for the third.

```
PC11
Physical Config Desktop Programming Attributes
Command Prompt
Pinging 192.168.21.1 with 32 bytes of data:
Reply from 192.168.21.1: bytes=32 time<lms TTL=255
Reply from 192.168.21.1: bytes=32 time<lms TTL=255
Reply from 192.168.21.1: bytes=32 time<lms TTL=255
Reply from 192.168.21.1: bytes=32 time<lms TTL=255
Ping statistics for 192.168.21.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>PING 192.168.21.12
Pinging 192.168.21.12 with 32 bytes of data:
Reply from 192.168.21.12: bytes=32 time=lms TTL=128
Reply from 192.168.21.12: bytes=32 time=lms TTL=128
Reply from 192.168.21.12: bytes=32 time=lms TTL=128
Reply from 192.168.21.12: bytes=32 time=lms TTL=128
Ping statistics for 192.168.21.12:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = lms, Average = 0ms
C:\>PING 192.168.21.13
Pinging 192.168.21.13 with 32 bytes of data:
Reply from 192.168.21.13: bytes=32 time<lms TTL=128
Reply from 192.168.21.13: bytes=32 time<lms TTL=128
Reply from 192.168.21.13: bytes=32 time<lms TTL=128
Reply from 192.168.21.13: bytes=32 time<lms TTL=128
Ping statistics for 192.168.21.13:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>
```

PC12

Physical Config Desktop Programming Attributes

Command Prompt

```
Pinging 192.168.21.1 with 32 bytes of data:
Reply from 192.168.21.1: bytes=32 time<1ms TTL=255
Reply from 192.168.21.1: bytes=32 time<1ms TTL=255
Reply from 192.168.21.1: bytes=32 time<1ms TTL=255
Reply from 192.168.21.1: bytes=32 time=17ms TTL=255

Ping statistics for 192.168.21.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 17ms, Average = 4ms

C:\>PING 192.168.21.11

Pinging 192.168.21.11 with 32 bytes of data:
Reply from 192.168.21.11: bytes=32 time<1ms TTL=128
Reply from 192.168.21.11: bytes=32 time<1ms TTL=128
Reply from 192.168.21.11: bytes=32 time<1ms TTL=128
Reply from 192.168.21.11: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.21.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>PING 192.168.21.13

Pinging 192.168.21.13 with 32 bytes of data:
Reply from 192.168.21.13: bytes=32 time<1ms TTL=128
Reply from 192.168.21.13: bytes=32 time<1ms TTL=128
Reply from 192.168.21.13: bytes=32 time<1ms TTL=128
Reply from 192.168.21.13: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.21.13:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Router

PC 11

PC 13

☐ Top

PC13

Physical Config Desktop Programming Attributes

Command Prompt

```
Pinging 192.168.21.1 with 32 bytes of data:
Reply from 192.168.21.1: bytes=32 time<1ms TTL=255
Reply from 192.168.21.1: bytes=32 time=4ms TTL=255
Reply from 192.168.21.1: bytes=32 time<1ms TTL=255
Reply from 192.168.21.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.21.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 4ms, Average = 1ms

C:\>PING 192.168.21.11

Pinging 192.168.21.11 with 32 bytes of data:
Reply from 192.168.21.11: bytes=32 time<1ms TTL=128
Reply from 192.168.21.11: bytes=32 time<1ms TTL=128
Reply from 192.168.21.11: bytes=32 time<1ms TTL=128
Reply from 192.168.21.11: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.21.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>PING 192.168.21.12

Pinging 192.168.21.12 with 32 bytes of data:
Reply from 192.168.21.12: bytes=32 time<1ms TTL=128
Reply from 192.168.21.12: bytes=32 time=19ms TTL=128
Reply from 192.168.21.12: bytes=32 time<1ms TTL=128
Reply from 192.168.21.12: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.21.12:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 19ms, Average = 4ms

C:\>
```

Router

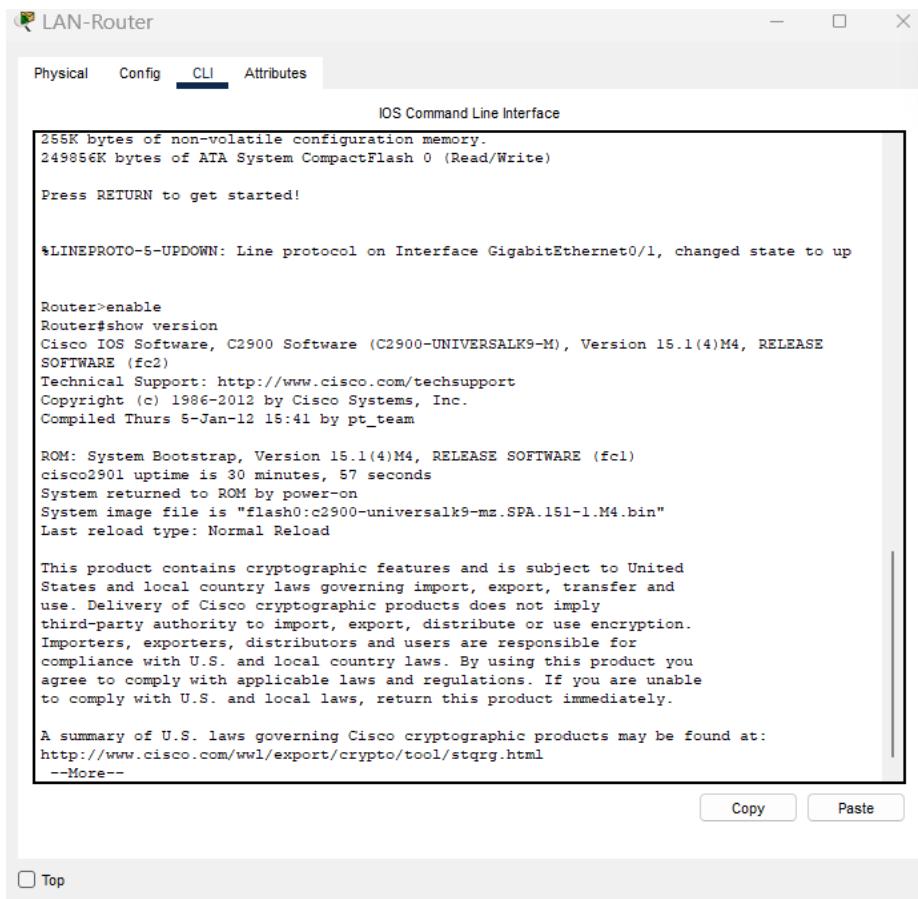
PC 11

PC 12

☐ Top

## c.)Router Command Results

### i. Show Version



The screenshot shows a web-based interface for a LAN-Router. The 'CLI' tab is selected, displaying the 'IOS Command Line Interface'. The output of the 'show version' command is shown, including memory statistics, system uptime, and software version details. The interface includes a 'Top' button and 'Copy'/'Paste' buttons.

```
255K bytes of non-volatile configuration memory.
249856K bytes of ATA System CompactFlash 0 (Read/Write)

Press RETURN to get started!

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

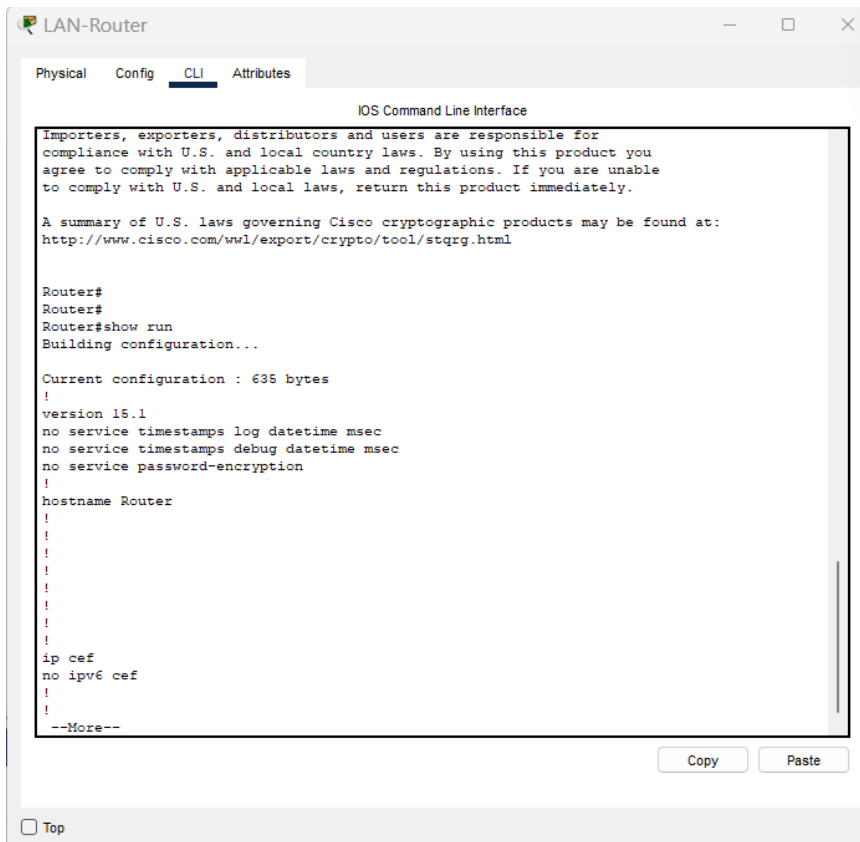
Router>enable
Router#show version
Cisco IOS Software, C2900 Software (C2900-UNIVERSALK9-M), Version 15.1(4)M4, RELEASE
SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2012 by Cisco Systems, Inc.
Compiled Thurs 6-Jan-12 15:41 by pt_team

ROM: System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)
cisco2901 uptime is 30 minutes, 57 seconds
System returned to ROM by power-on
System image file is "flash0:c2900-universalk9-mz.SPA.151-1.M4.bin"
Last reload type: Normal Reload

This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html
--More--
```

### ii. Show run



The screenshot shows the same LAN-Router interface with the 'show run' command output. It displays the current configuration, including the version, service timestamps, and the hostname 'Router'. The interface includes a 'Top' button and 'Copy'/'Paste' buttons.

```
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

Router#
Router#
Router#show run
Building configuration...

Current configuration : 635 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
--More--
```

### iii. Show ip int brief

```
Router#show ip interface brief
Interface                IP-Address      OK? Method Status      Protocol
GigabitEthernet0/0       unassigned      YES manual administratively down down
GigabitEthernet0/1       192.168.21.1    YES manual up          up
Vlan1                    unassigned      YES unset  administratively down down
Router#
```

Copy

Paste

☐ Top

### EXTRAS:

#### Switch configurations

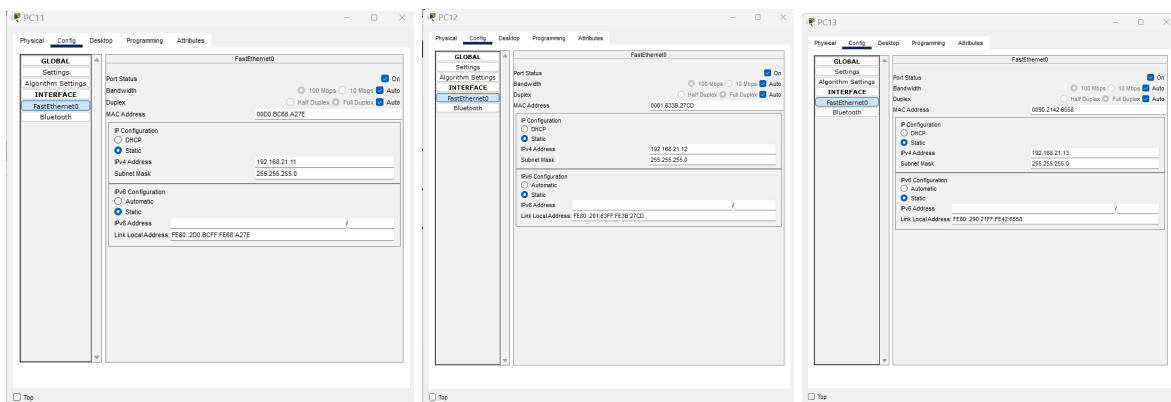
```
LAN-switch(config-if)#exit
LAN-switch(config)#interface FastEthernet0/1
LAN-switch(config-if)#switchport access vlan 1
LAN-switch(config-if)#exit
LAN-switch(config)#interface FastEthernet0/2
LAN-switch(config-if)#switchport access vlan 2
LAN-switch(config-if)#exit
LAN-switch(config)#interface FastEthernet0/3
LAN-switch(config-if)#switchport access vlan 3
LAN-switch(config-if)#
```

Copy

Paste

☐ Top

### PC Configurations



### LAB 3 Questions:

1) What Layer of the OSI Model does IP addressing take place?

IP addressing takes place in Layer 3 the networking layer of the OSI model

2) What does DHCP stand for and how is DHCP different from static addressing?

DHCP stands for dynamic host configuration protocol. It is a temporary and adjustable way to assign IP addresses to devices compared to static addressing where the ISP assigns an unchangeable address to a device.

3) What is the command to enter privileged mode on a CISCO router or switch?

The command is "enable" to enter privileged mode on CISCO router or switch.

4) What command or set of commands did you use to configure the interfaces on the Router and Switch?

For the router I used int gi0/x to first choose which interface to configure. Then I used ip address xxx.xxx.xx.x to set the ip address the the subnet mask.

For the switch I used interface fa0/x to choose which interface to configure. Then for each interface I used switchport access vlan x to set the access vlan number for each interface.

5) Convert the subnet mask 255.255.255.0 to binary. a. How many hosts can be addressed in this Subnet?

11111111.11111111.11111111.00000000 is the binary of 255.255.255.0. Since there are 8 zeroes the number of usable hosts in this subnet is  $2^8 - 2 = 254$  usable hosts in this subnet.