

Lab 3 - LAN | DHCP

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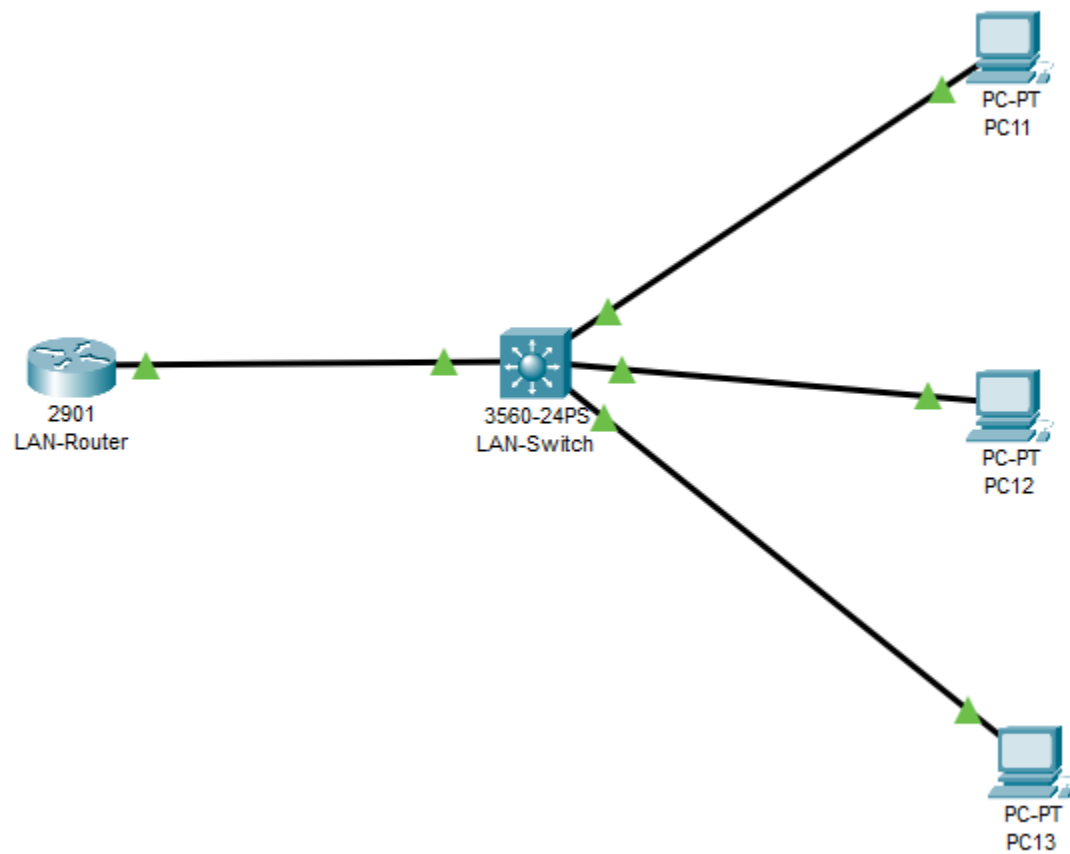
LAB COMPLETED REMOTELY

1) Packet Tracer File: CNT4703C-Lab3-[full-name-of-student]

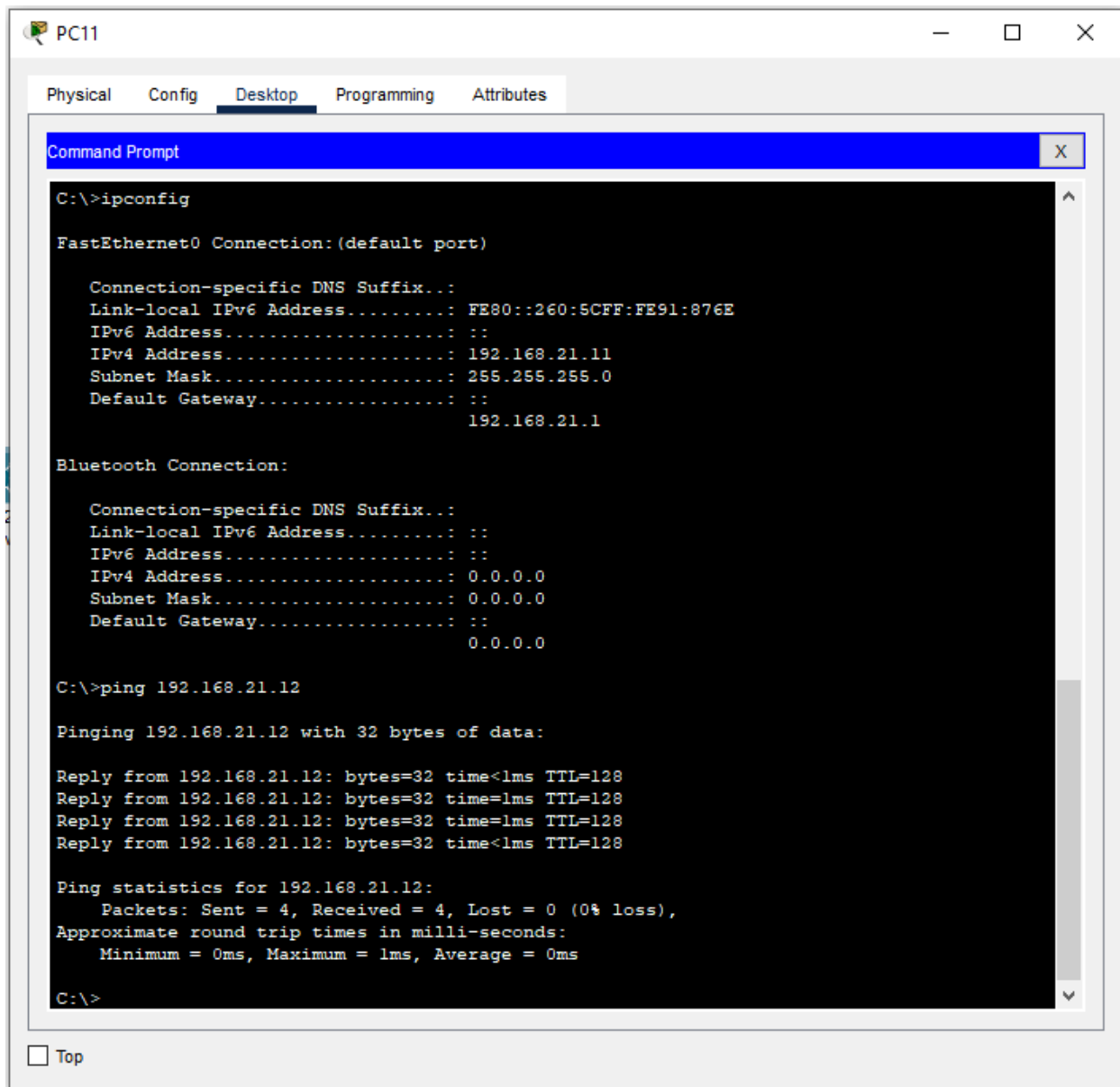
- Attached ptk file

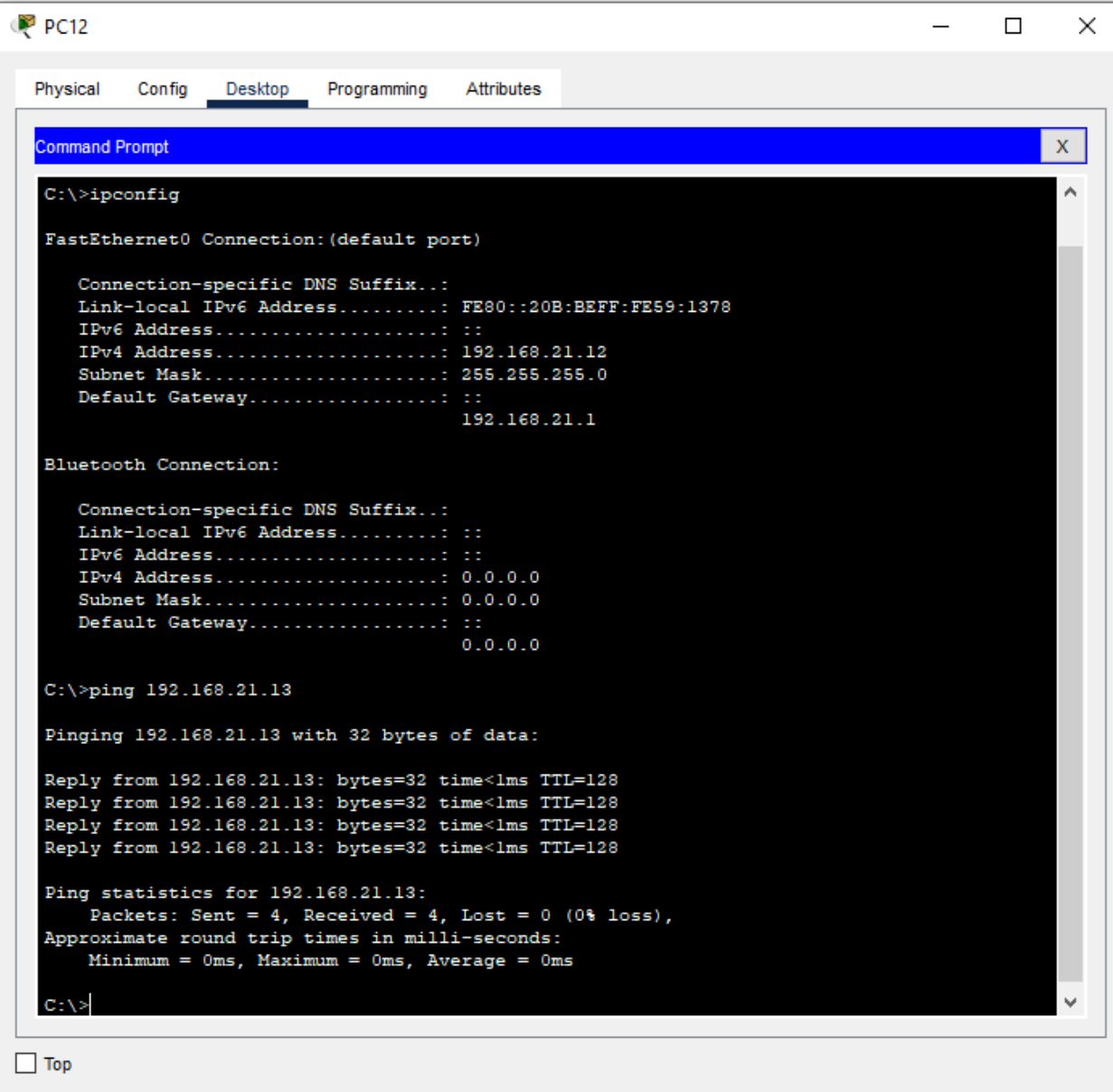
2) Screenshots of Packet Tracer Model

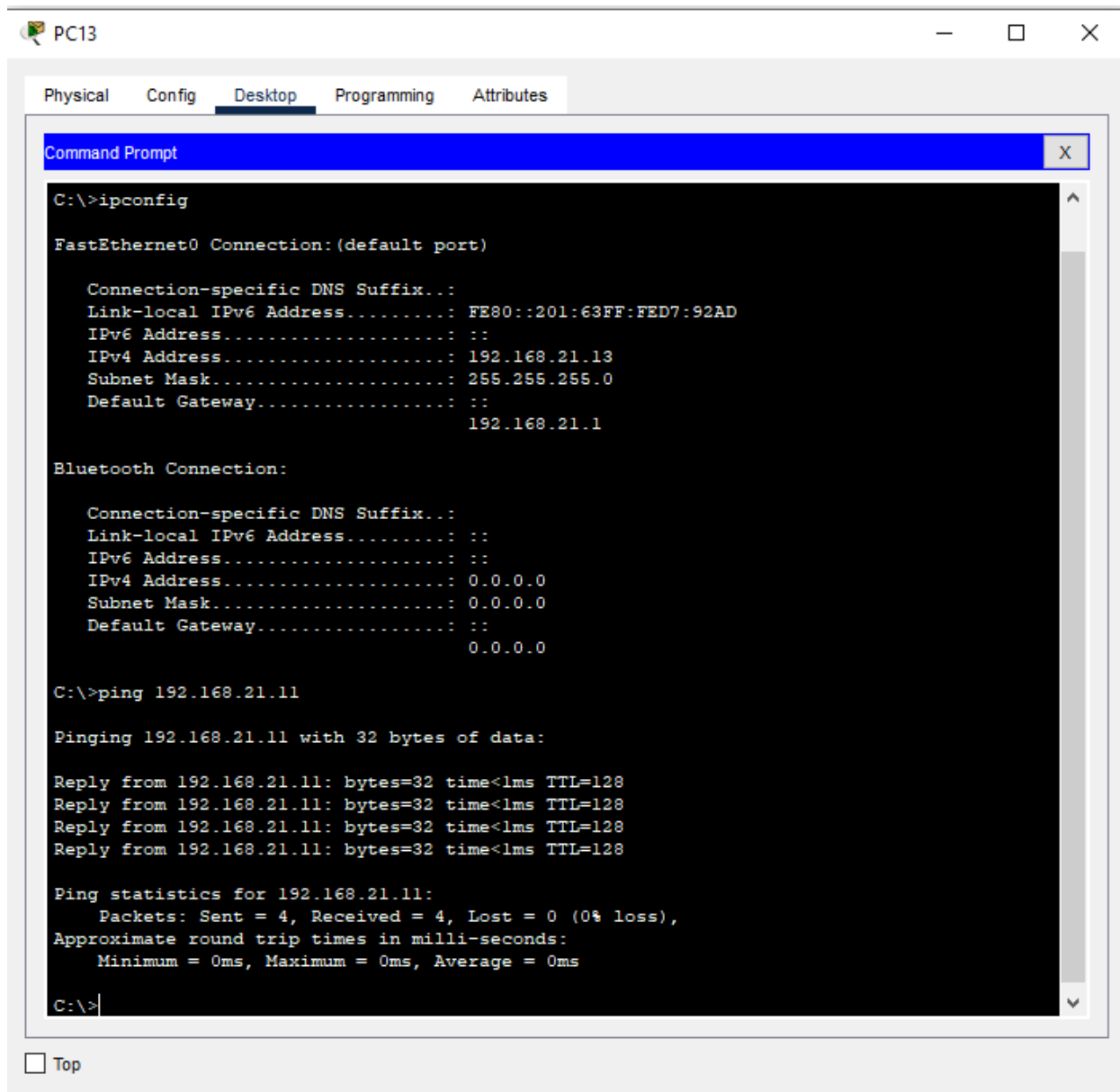
a. Network Topology (Logical)



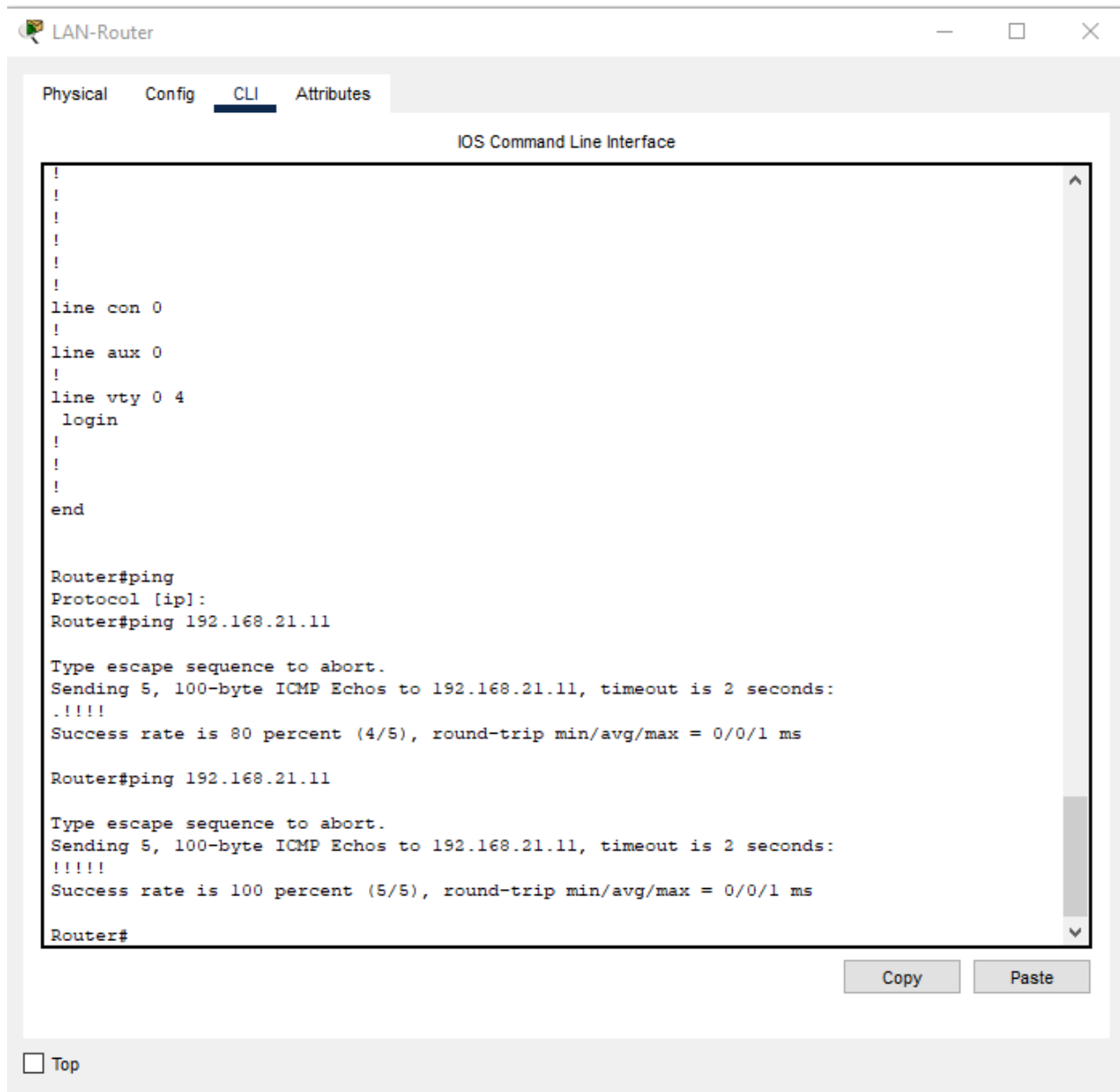
b. Successful Ping from PC-to-PC







c. Successful Ping from Router to PC



3) Photos of Router/Switch/PC Configuration (if ONLINE, then within Packet Tracer).

LAN-Router

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/0

Port Status

☒ On

Bandwidth

☐ 1000 Mbps ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex

☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address

00E0.F9E4.8401

IP Configuration

IPv4 Address

192.168.21.1

Subnet Mask

255.255.255.0

Tx Ring Limit

10

LAN-Switch

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/1

FastEthernet0/2

FastEthernet0/3

FastEthernet0/4

FastEthernet0/5

FastEthernet0/6

FastEthernet0/7

FastEthernet0/8

FastEthernet0/9

Global Settings

Display Name

LAN-Switch

Hostname

Switch

NVRAM

Erase

Save

Startup Config

Load...

Export...

Running Config

Export...

Merge...

PC11

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.21.11

Subnet Mask 255.255.255.0

Default Gateway 192.168.21.1

DNS Server 8.8.8.8

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::260:5CFF:FE91:876E

Default Gateway

DNS Server

802.1X

PC12

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.21.12

Subnet Mask 255.255.255.0

Default Gateway 192.168.21.1

DNS Server 8.8.8.8

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::20B:BEFF:FE59:1378

Default Gateway

DNS Server

PC13

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.21.13

Subnet Mask 255.255.255.0

Default Gateway 192.168.21.1

DNS Server 8.8.8.8

IPv6 Configuration

☐ Automatic ☒ Static

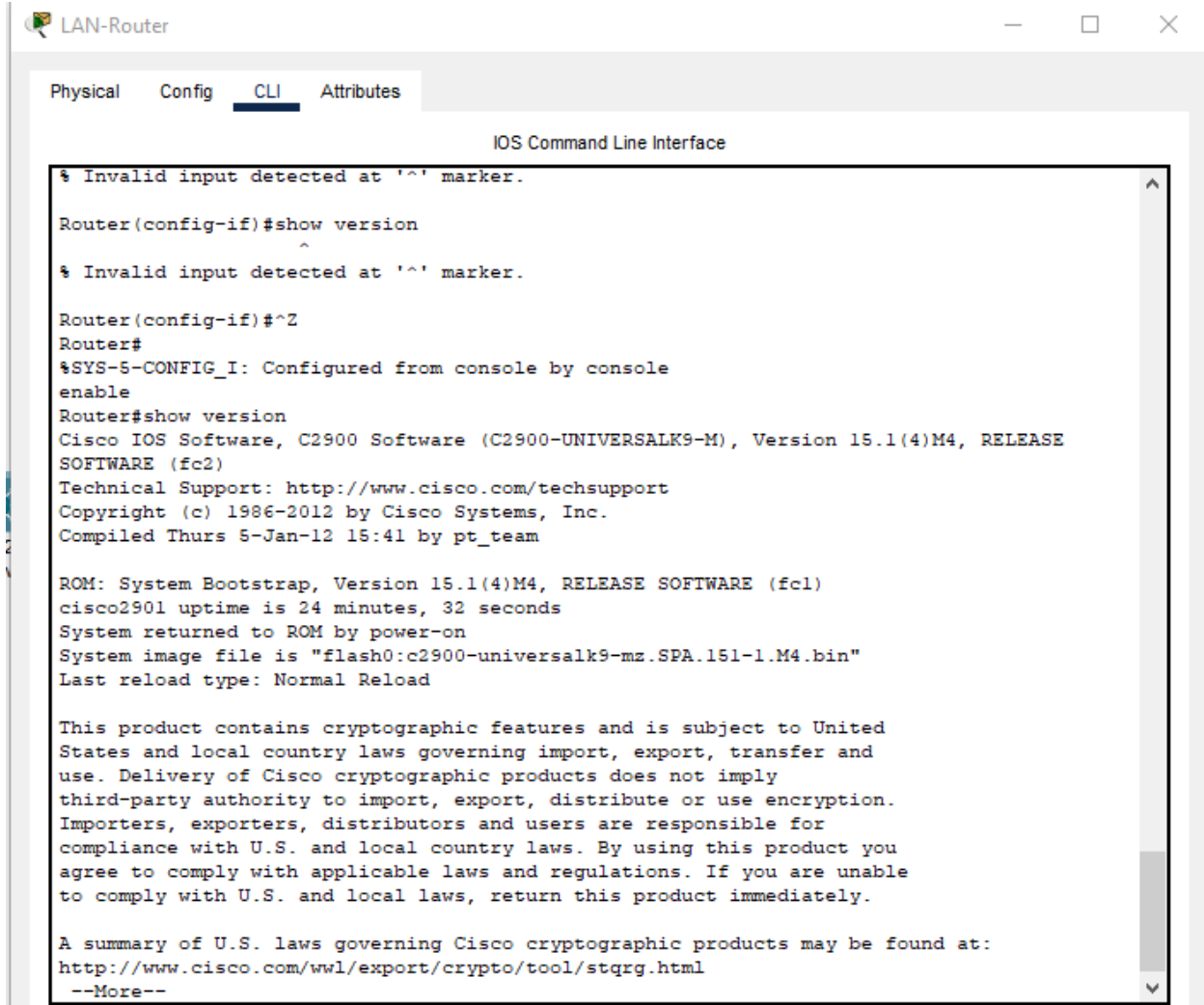
IPv6 Address /

Link Local Address FE80::201:63FF:FED7:92AD

Default Gateway

DNS Server

- a. Router Command Results
- i. Show version



LAN-Router

Physical Config CLI Attributes

IOS Command Line Interface

```
% Invalid input detected at '^' marker.

Router(config-if)#show version
^
% Invalid input detected at '^' marker.

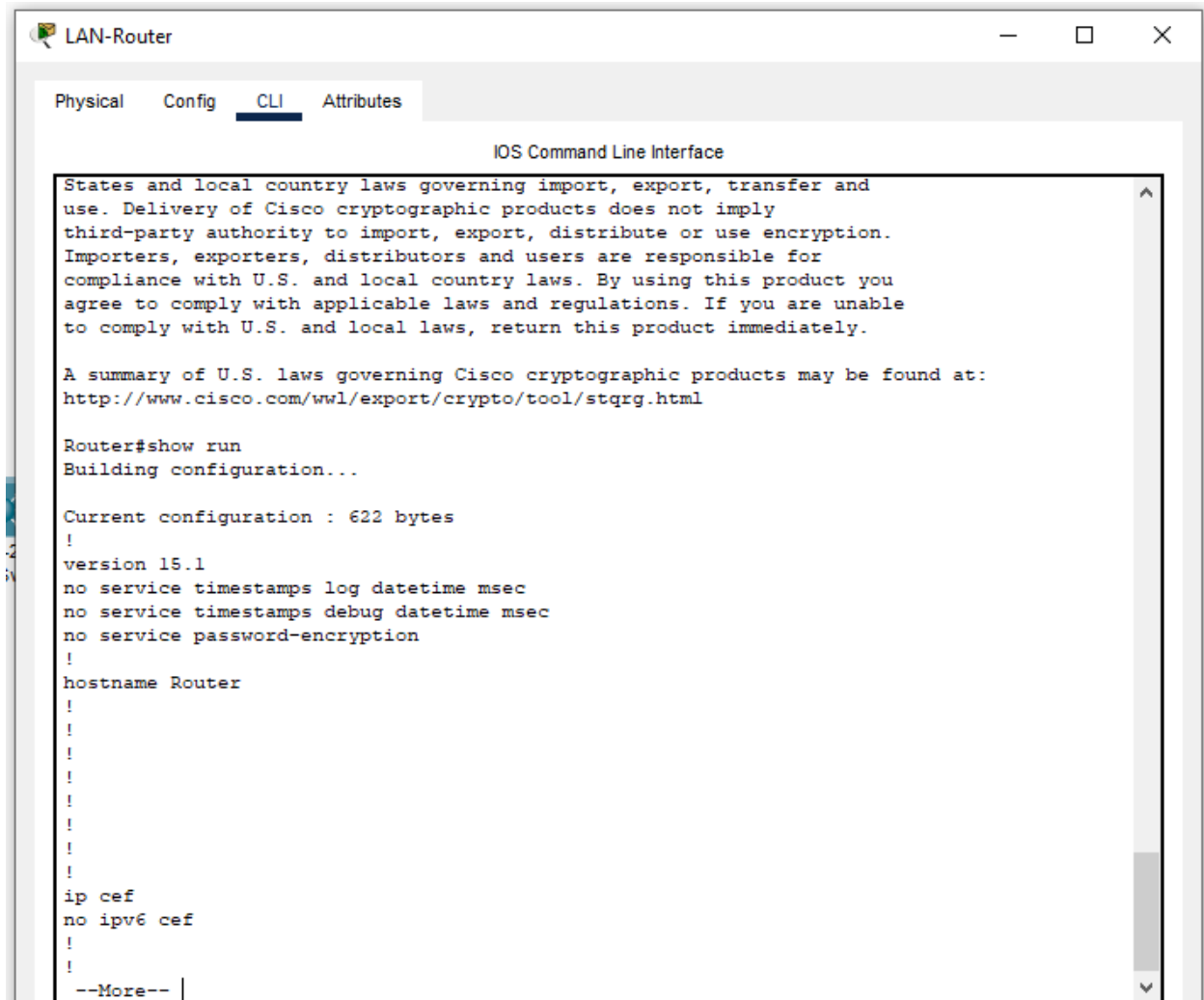
Router(config-if)#^Z
Router#
%SYS-5-CONFIG_I: Configured from console by console
enable
Router#show version
Cisco IOS Software, C2900 Software (C2900-UNIVERSALK9-M), Version 15.1(4)M4, RELEASE
SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2012 by Cisco Systems, Inc.
Compiled Thurs 5-Jan-12 15:41 by pt_team

ROM: System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)
cisco2901 uptime is 24 minutes, 32 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



iii. Show ip int brief

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

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

- Layer 3 of the OSI model otherwise known as the network layer is where IP addressing takes place.

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

- DHCP stands for Dynamic Host Configuration Protocol and it is responsible for automatically assigning devices IP addresses within a given DHCP scope/pool. It is different from static routing because static routing requires that each device be manually configured with a static IP address on the device itself, whereas if DHCP is enabled on the device and configured on the router, the router will automatically assign that device an IP address without needing to be manually configured.

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

- The enable command used 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?

- The configure terminal command used to enter in configuration mode and interface command used to configure the interfaces on the router and the switch

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

- The binary value of 255 is 11111111.
- So the binary value of subnet mask 255.255.255.0 =
11111111.11111111.11111111.00000000
- a. The number of host bits in the subnet = 8 bits
- Number of host can be addressed $2^n - 2 = 2^8 - 2 = 256 - 2 = 254$ hosts
- (256 total, minus 2 hosts for default gateway and broadcast address)