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Section: S2 -A

Task 2

Execute the following network commands like ipconfig, tracert, telnet, ping, nslookup, netstat

Procedure:

Step 1: Launch CISCO packet tracer; double click the cisco packet tracer icon on your desktop or find it the search bar or applications list and open the program.

Step 2: Create a simple network topology

1) Add devices
   Drag and drop a router and switch from the device list on to the workspace
   Drag and drop 2 PC's on to the workspace

2) Connect devices:
   Use the connection tool to connect the devices
   - Connect one PC to the switch using the Copper Straight-Through cable
   - Connect the switch to the router using another Copper Straight-Through cable
   - Connect the second PC to the switch using Copper straight-Through cable

3) Configure devices:

   Configure the router:
   - Click on the router
   - Go to config tab
   - Assign IP address to the router interfaces

Ex:

i) [PC0]
   Interface G0/0/0
   IPv4 add = 192.168.1.1
   Subnet mask = 255.255.255.0

ii) [PC1]
   Interface G0/0/1
   IPv4 add = 192.168.2.1
   Subnet mask = 255.255.255.0

4) Configure the PC's:

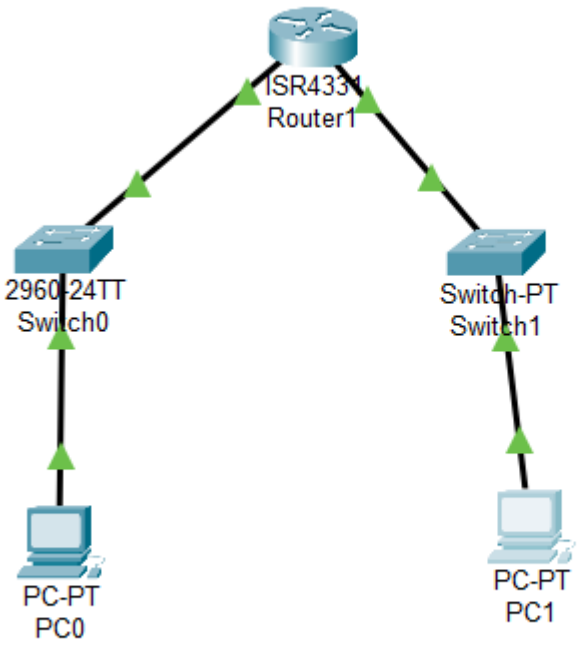
   - Click on each PC
   - Go to the desktop option

- IP configuration
- Assigning IP addresses to each PC

Ex:

i) [PC0]
IP: 192.168.1.2
Subnet mask = 255.255.255.0,
Default gateway = 192.168.1.1

ii) [PC0]
IP: 192.168.2.2
Subnet mask = 255.255.255.0,
Default gateway = 192.168.2.1



Step 3: Execute networking commands

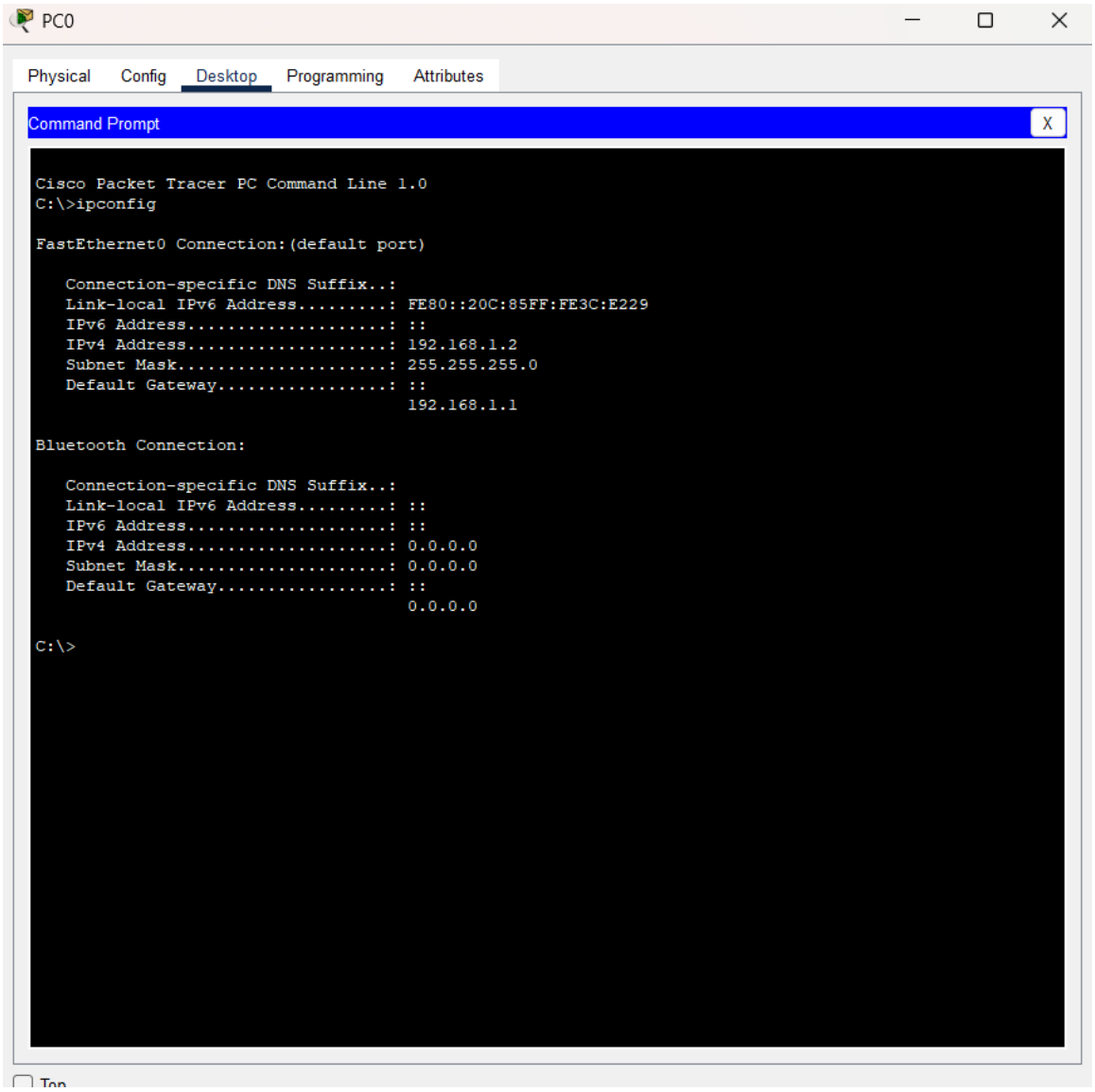
1. Command ipconfig:

This command displays all current tcp ip network configurations values and all DHCP and DNS settings.

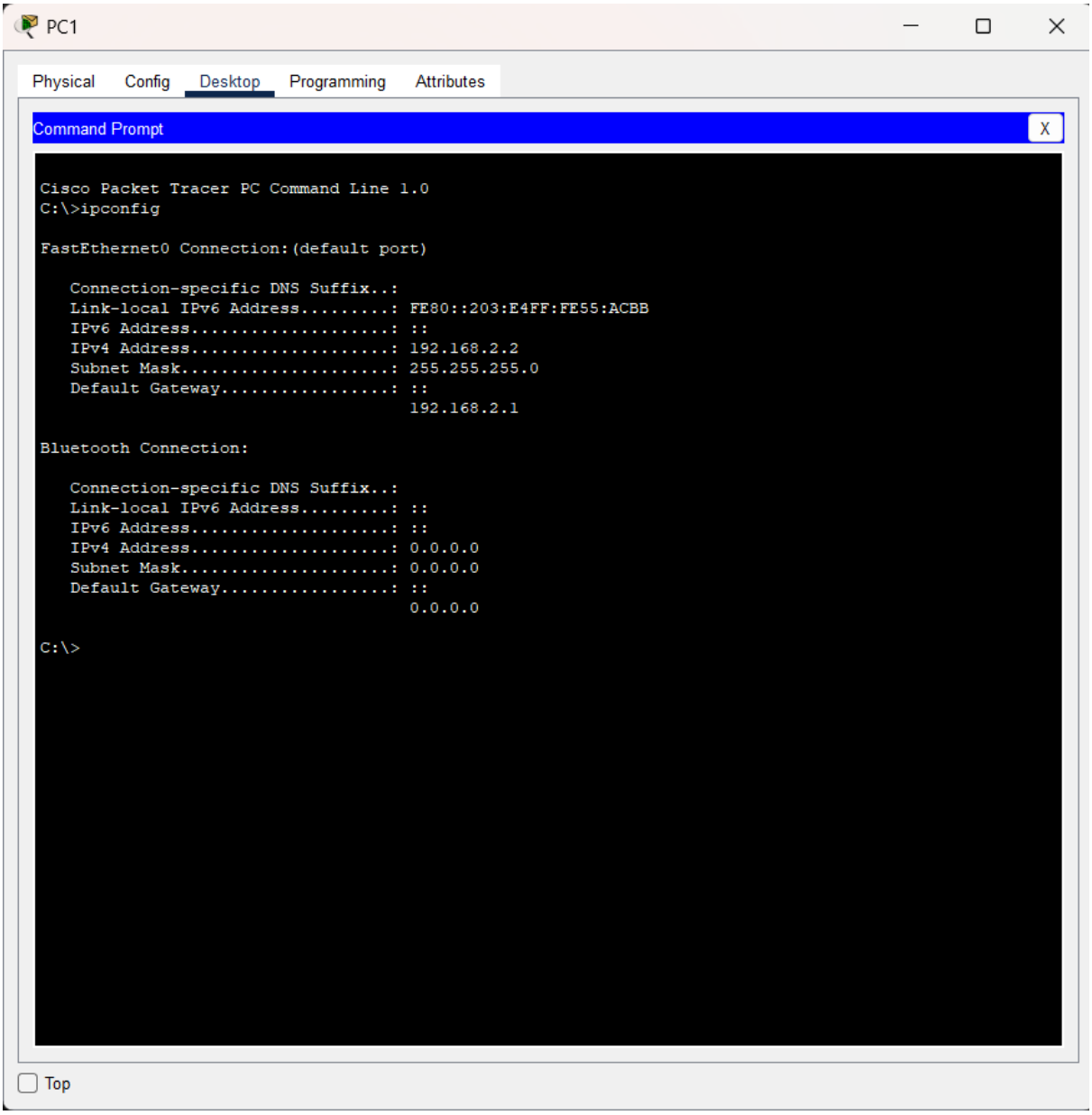
Open the command prompt of PC0:

- Click on PC0
- Go to the desktop tab
- Open the command prompt
- Type command **ipconfig**

Output:



- Follow the same steps for PC1: The output will be


PC1
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Cisco Packet Tracer PC Command Line 1.0
C:\>ipconfig
FastEthernet0 Connection:(default port)
Connection-specific DNS Suffix..:
Link-local IPv6 Address.....: FE80::203:E4FF:FE55:ACBB
IPv6 Address.....: ::
IPv4 Address.....: 192.168.2.2
Subnet Mask.....: 255.255.255.0
Default Gateway.....: ::
192.168.2.1
Bluetooth Connection:
Connection-specific DNS Suffix..:
Link-local IPv6 Address.....: ::
IPv6 Address.....: ::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: ::
0.0.0.0
C:\>
Top

2. Command tracert:

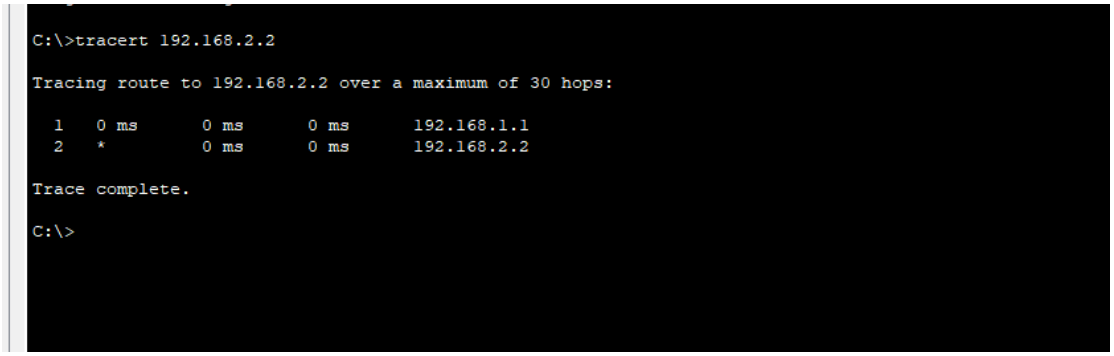
This command traces the path taken to a destination by sending ICMP echo request messages

Step1:

- Click on PC0
- Go to desktop tab
- Open the command prompt

Command: tracert 192.168.2.2

Output:



3. Command telnet:

Telnet is an unencrypted protocol and is not secure. For real-world applications, consider using SSH to secure remote connections.

Step1:

- Click on the router
- Go to the config tab
- Select the interface connected to the switch (e.g. G0/0)
- Assign IP address 192.168.1.1, Subnet mask: 255.255.255.0
- Open the CLI and type exit until you get this

- Once you get this type all these commands:
  Router>enable
  Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router (config) #line vty 0 4
Router (config-line)#password cisco
Router (config-line)#login
Router (config-line)#exit
Router (config-line)#exit
Router (config)#end
Router#
\SYS-5-CONFIG_I: Configured from console by console
Router#write memory Building configuration...
[OK]

Router#

Reference image to write the commands

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#line vty 0 4
Router(config-line)#password cisco
Router(config-line)#login
Router(config-line)#enxit
                    ^
% Invalid input detected at '^' marker.

Router(config-line)#exit
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#write memory
Building configuration...
[OK]
Router#
```

Step2:

- Now open the Command prompt of PC0
- Click on the PC0
- Click on the desktop
- Then click on the command prompt
- Enter the command: telnet 192.168.1.1
- You can see the password: type cisco

Your command execution is completed

Output:

```
C:\>telnet 192.168.1.1
Trying 192.168.1.1 ...Open


User Access Verification

Password:
Router>

[Connection to 192.168.1.1 closed by foreign host]
```

Router configuration and brief ip interface:

Note: This should be done in the CLP (Command line interface) of the router

Command: show ip interface brief

Output:

```
Router>show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0/0   192.168.1.1     YES manual up                    up
GigabitEthernet0/0/1   192.168.2.1     YES manual up                    up
GigabitEthernet0/0/2   unassigned      YES unset  administratively down down
Vlan1                  unassigned      YES unset  administratively down down
Router>
```

4. Command ping:

The ping command is used to **test network connectivity** between two devices. It checks if one device (like a PC) can reach another device (like a router, server, or website) and measures how long it takes.

- Click on the PC0
- Click on the desktop
- Click command prompt
- Type the following command
- Command: ping 192.168.2.2

Output:

```
C:\>ping 192.168.2.2

Pinging 192.168.2.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.2: bytes=32 time<1ms TTL=127
Reply from 192.168.2.2: bytes=32 time<1ms TTL=127
Reply from 192.168.2.2: bytes=32 time=13ms TTL=127

Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 13ms, Average = 4ms

C:\>
```

5. Command nslookup:

This command queries the DNS to obtain domain name or IP address maping.

To use the nslookup command to resolve a domain name to an IP addressin Cisco Packet Tracer, you'll need to ensure that the DNS server is properly configured in your netwok topology.

Step 1: Add one server (to act as a DNS server).

Step2: Connect both PCs and the server to the switch using copper straight-through cables.

Configure the DNS Server

1. Assign IP Address:

- Click on the server.
- Go to the Config tab and select the FastEthernet0 interface.
- Assign
  IP address: 192.168.1.3,
  Subnet Mask: 255.255.255.0,
  Default Gateway: 192.168.1.1.

Configure DNS Service:

- Go to the Services tab on the server.
- Select DNS and turn the service On.
- Add an entry for www.google.com with an IP address (e.g., 8.8.8.8).
- Use the nslookup Command

Step3: Open Command Prompt on PCO:

- Go to the Desktop tab on PCO.
- Open the Command Prompt. 2.
- Execute the nslookup
- Command: nslookup www.google.com

Output:

6. Command netstat:

- This command displays network connections for the Transmission Control Protocol (TCP), routing tables, and a number of network interface and network protocol statistics.
- The netstat command is used to display network connections, routing tables, interface statistics, masquerade connections, and multicast memberships.

DNS Server Configuration: Ensure that the DNS server is correctly configured and running.

DNS Entries: The DNS entry for www.google.com should be added to the DNS server with an IP address.

Network Configuration:
Ensure that all devices are correctly connected and configured with appropriate IP addresses, subnet masks, and default gateways.