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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

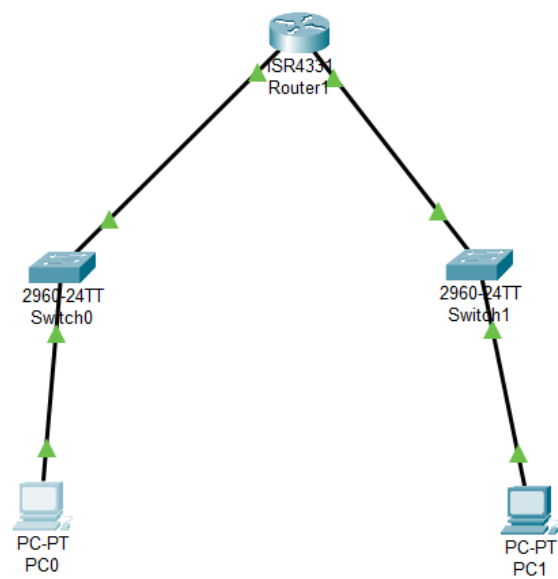
Subnet mask = 255.255.255.0

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

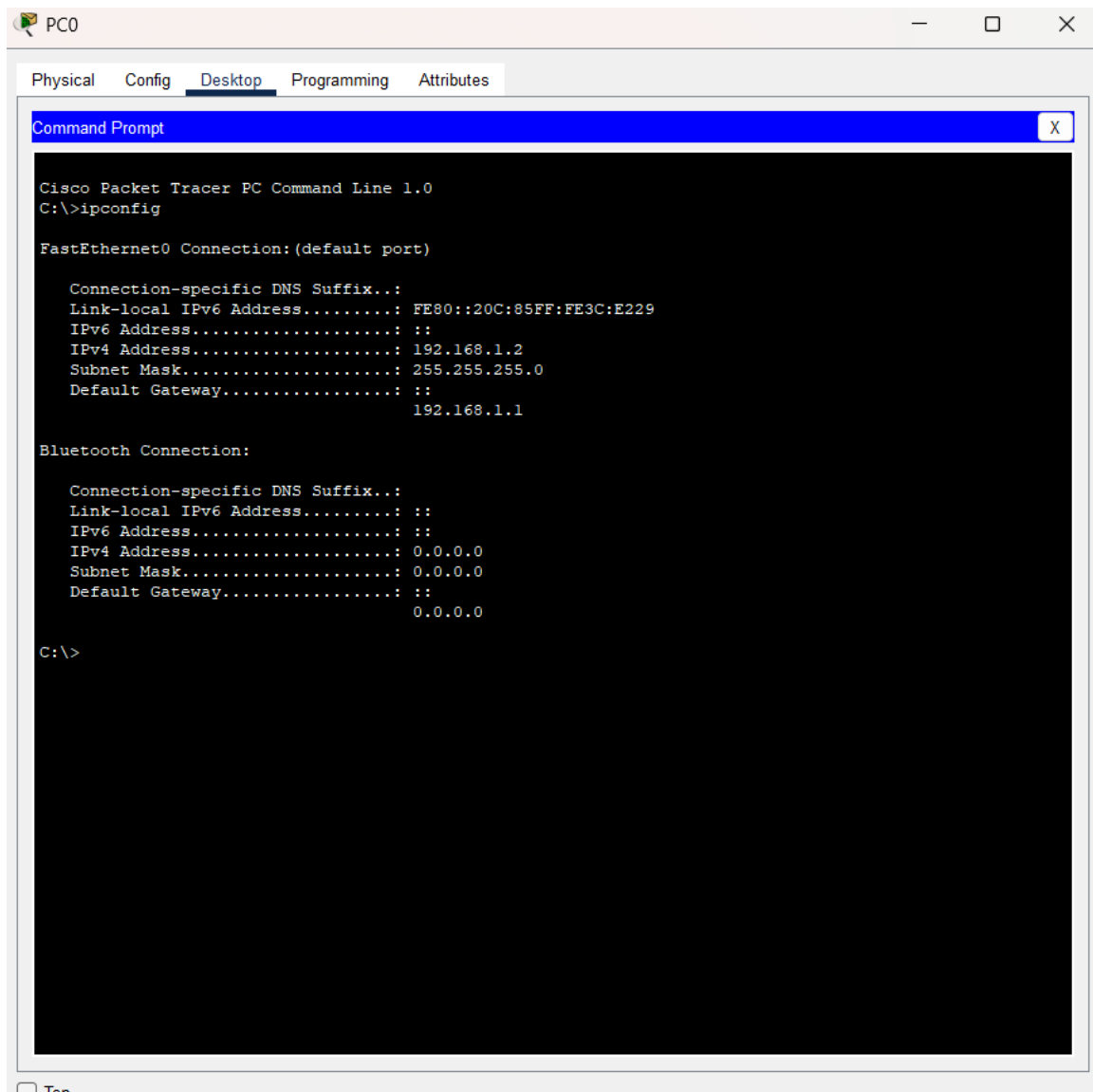
#### 1. Command **ipconfig**:

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:



```
PC0
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ipconfig

FastEthernet0 Connection: (default port)

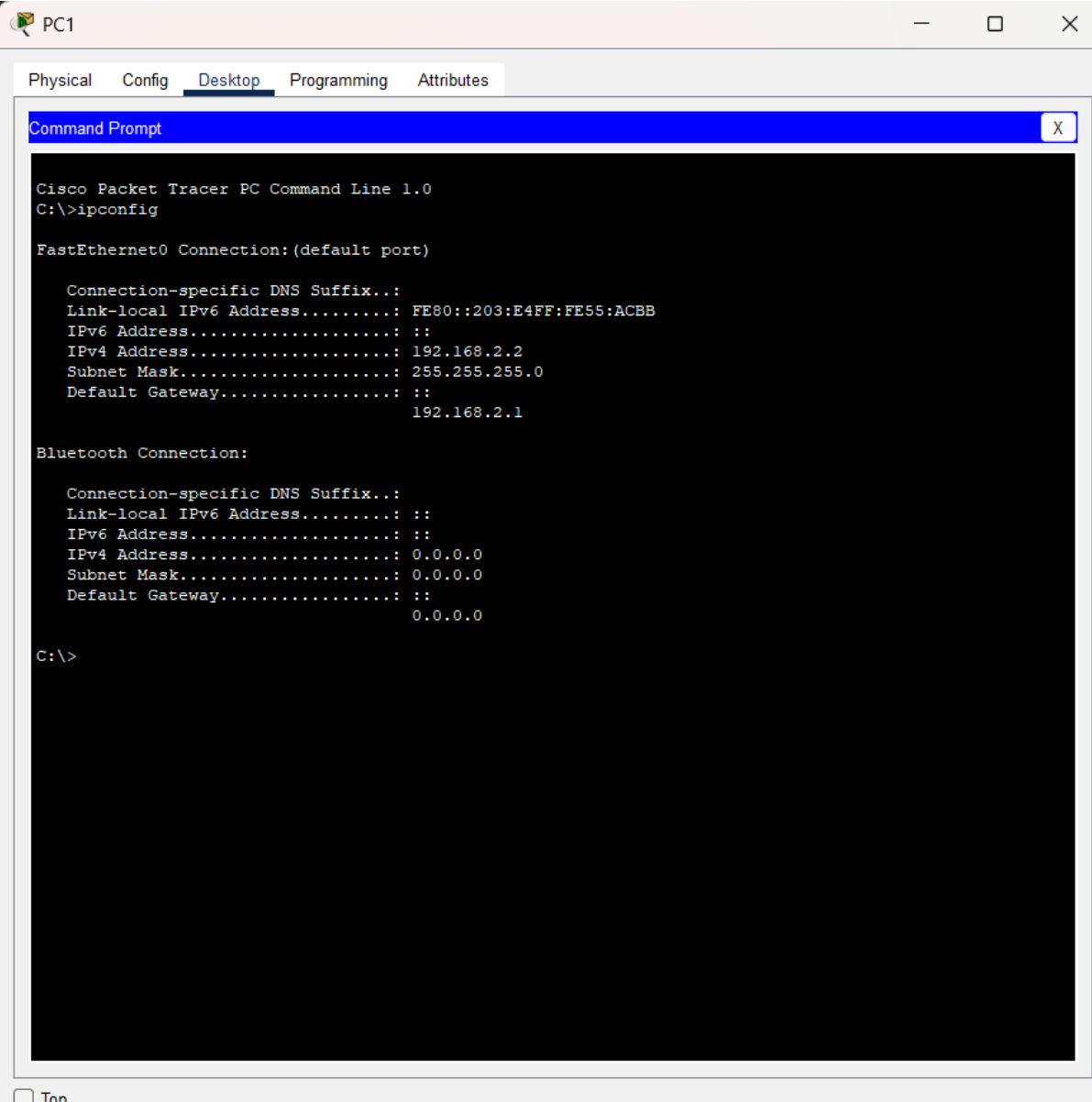
    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::20C:85FF:FE3C:E229
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 192.168.1.2
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::
                                192.168.1.1

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:\>
```

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



The screenshot shows a window titled "PC1" with tabs for "Physical", "Config", "Desktop", "Programming", and "Attributes". The "Desktop" tab is active, displaying a "Command Prompt" window. The Command Prompt shows the output of the "ipconfig" command, detailing network settings for "FastEthernet0" and "Bluetooth Connection".

```
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:\>
```

At the bottom left of the window, there is a checkbox labeled "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

Commnad: tracert 192.168.2.2

### Output:

```
C:\>tracert 192.168.2.2

Tracing route to 192.168.2.2 over a maximum of 30 hops:

  1  0 ms      0 ms      0 ms      192.168.1.1
  2  *         0 ms      0 ms      192.168.2.2

Trace complete.

C:\>
```

### 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

```
Router con0 is now available
```

```
Press RETURN to get started.
```

```
Router>enable
```

- 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 mapping.

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

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

**Step 2:** 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

**Step 3:** Open Command Prompt on PC0:

- Go to the Desktop tab on PC0.
- Open the Command Prompt. 2.
- Execute the nslookup
- Command: nslookup www.google.com

### **Output:**

```
C:\>nslookup www.google.com

Server: [255.255.255.255]
Address: 255.255.255.255

Non-authoritative answer:
Name:    www.google.com
Address: 8.8.8.8

C:\>
```

## 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.

