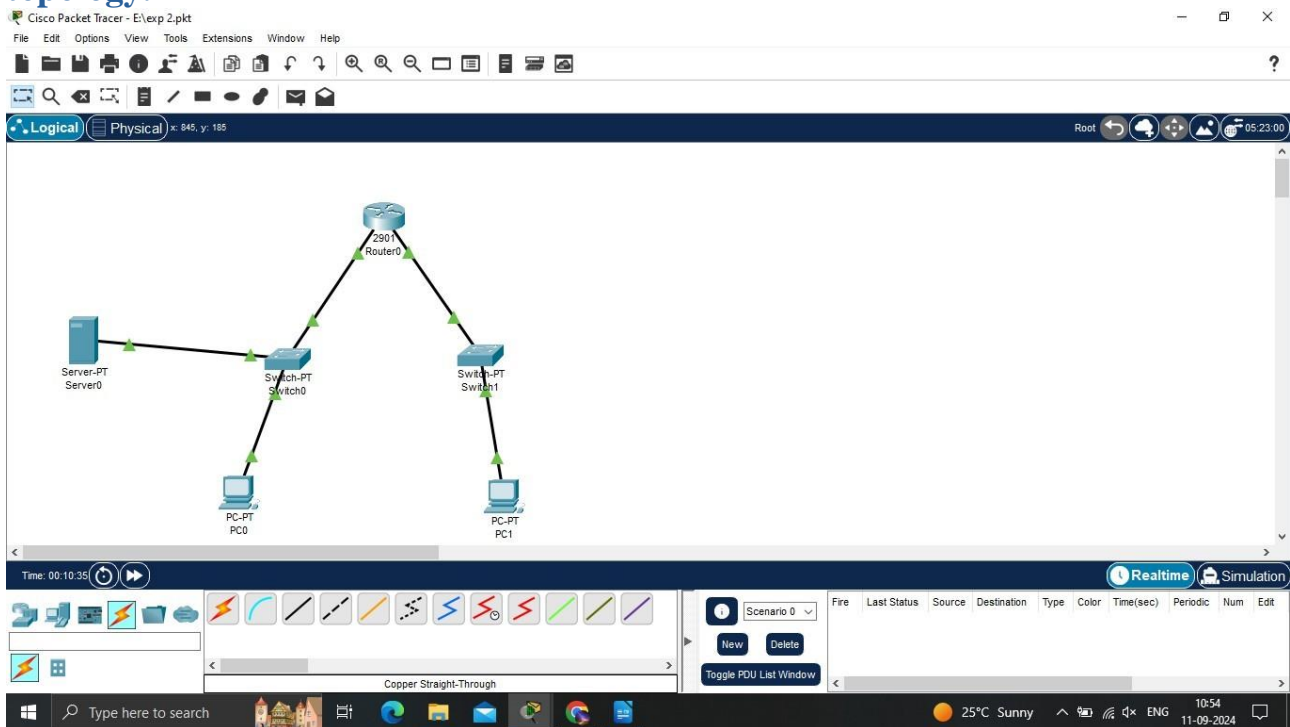


Exp: 2: Execute the following networking commands like ipconfig, tracert, telnet, netsh, ping, nslookup and netstat in the command prompt with simple topology.



Step 2: Create a Simple Network Topology

1. Add Devices:

- **Routers and Switches:** Drag and drop a router and a switch from the device list onto the workspace.
- **PCs:** Drag and drop two PCs onto the workspace.

2. Connect Devices:

- Use the **Connection** tool to connect the devices:
 - Connect one PC to the switch using a copper straight-through cable.
 - Connect the switch to the router using another copper straight-through cable.
 - Connect the second PC to the switch using a copper straight-through cable.

Step 3: Configure Devices

1. Configure the Router:

- Click on the router.
- Go to the **Config** tab.
- Assign IP addresses to the router interfaces.

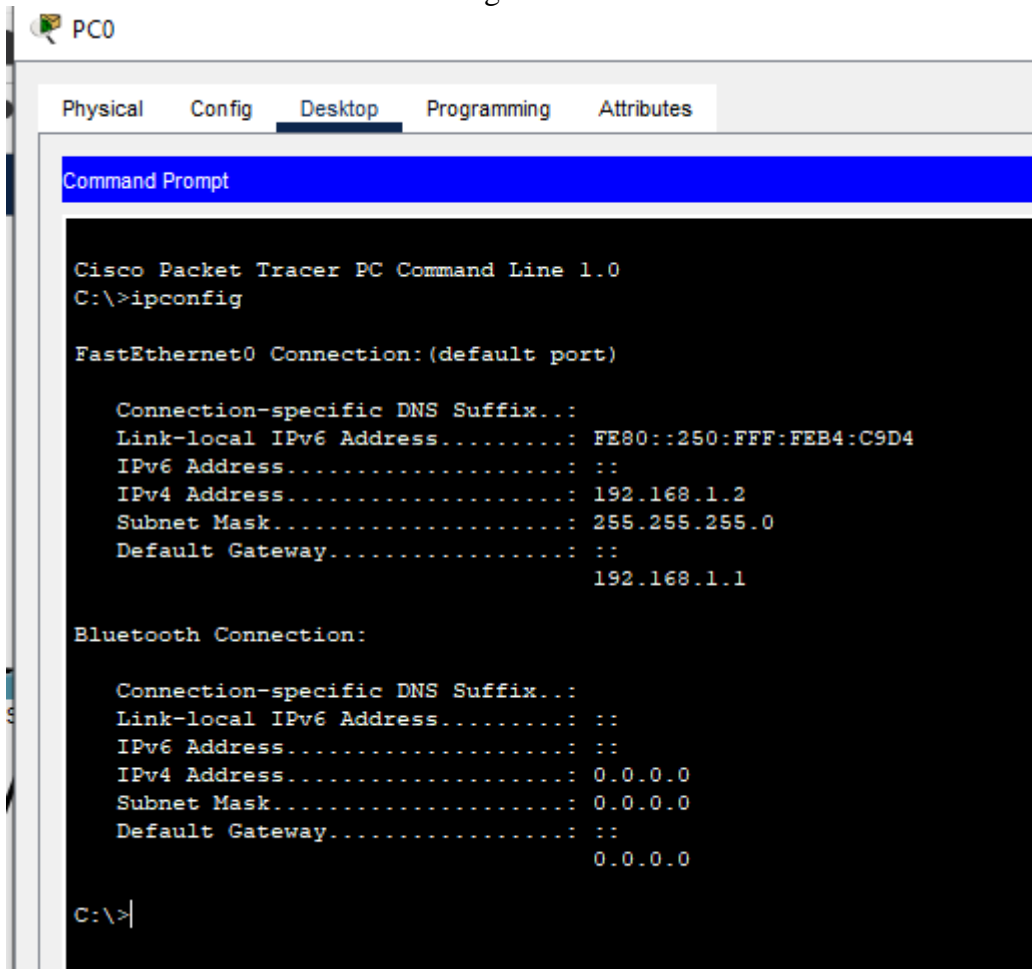
- Interface G0/0: IP address 192.168.1.1, Subnet Mask 255.255.255.0
- Interface G0/1: IP address 192.168.2.1, Subnet Mask 255.255.255.0

2. Configure the PCs:

- Click on each PC.
- Go to the **Desktop** tab and then **IP Configuration**.
- Assign IP addresses to each PC.
 - PC0: IP address 192.168.1.2, Subnet Mask 255.255.255.0, Default Gateway 192.168.1.1
 - PC1: IP address 192.168.2.2, Subnet Mask 255.255.255.0, Default Gateway 192.168.2.1

1. ipconfig:

This command displays all current TCP/IP network configuration values and refreshes DHCP and DNS settings.



The screenshot shows the 'Desktop' tab of PC0 in Cisco Packet Tracer. A command prompt window is open, displaying the output of the 'ipconfig' command. The output shows the configuration for the FastEthernet0 interface, including the IPv4 address 192.168.1.2, subnet mask 255.255.255.0, and default gateway 192.168.1.1. It also shows the configuration for the Bluetooth interface, which is currently set to 0.0.0.0.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::250:FFF:FEB4:C9D4
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 192.168.1.2
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::
                                   192.168.1.1

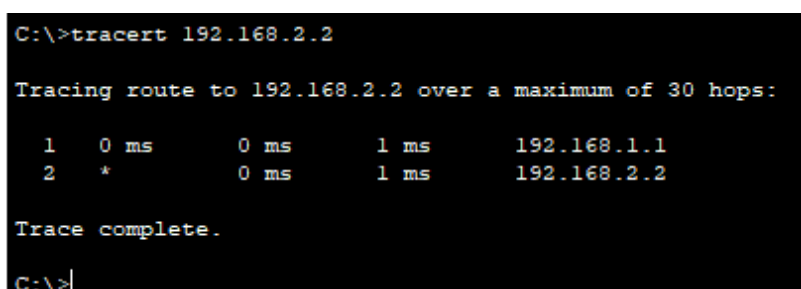
Bluetooth Connection:

    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:\>
```

2. tracert:

This command traces the path taken to a destination by sending ICMP Echo Request messages.



The screenshot shows a command prompt window with the output of the 'tracert 192.168.2.2' command. The output shows the path taken from the source to the destination, including the hop number, time in milliseconds, and the IP address of each hop.

```
C:\>tracert 192.168.2.2

Tracing route to 192.168.2.2 over a maximum of 30 hops:

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

Trace complete.

C:\>
```

Configure the Router

1. Assign IP Address:

- 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

```
Router(config-if)#line vty 04
Router(config-line)#password cisco
Router(config-line)#login
Router(config-line)#exit
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

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

3. Telnet from PC to Router

1. Open Command Prompt:

- On the PC0, go to the **Desktop** tab and open the **Command Prompt**.

2. Execute Telnet Command:

telnet <destination IP> <port>

```
Router>telnet 192.168.1.1 23
Trying 192.168.1.1 ...Open

User Access Verification

Password:
Router>
```

3. Router configuration and Brief Ip Interface

This command is a scripting utility that allows you to display or modify the network configuration of a computer.

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

4. Ping 192.168.2.2

```
Pinging 192.168.2.2 with 32 bytes of data:

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<1ms TTL=127
Reply from 192.168.2.2: bytes=32 time<1ms TTL=127

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

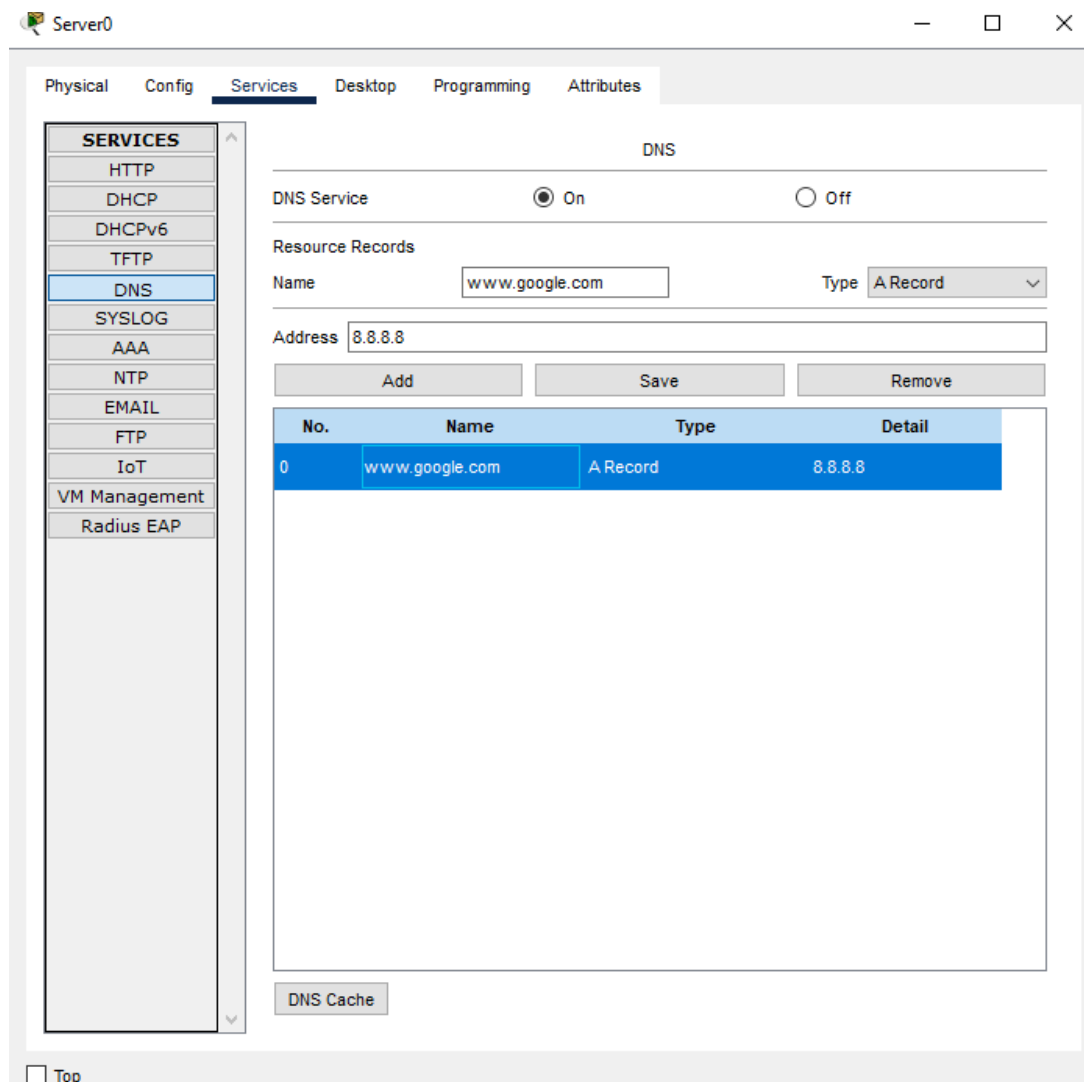
Configure the DNS Server

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:

- Select **DNS** and turn the service **On**.
- Add an entry for `www.google.com` with an IP address (e.g., 8.8.8.8).



5. Use the nslookup Command

1. 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

```
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.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.