

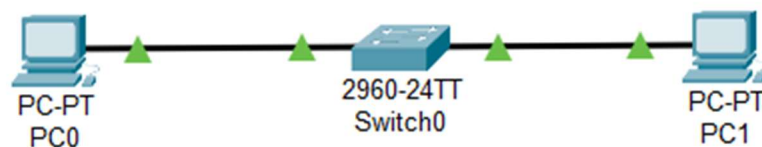
LINUX NETWORKING MODULE 3 AND 4 ASSESSMENT SOLUTIONS

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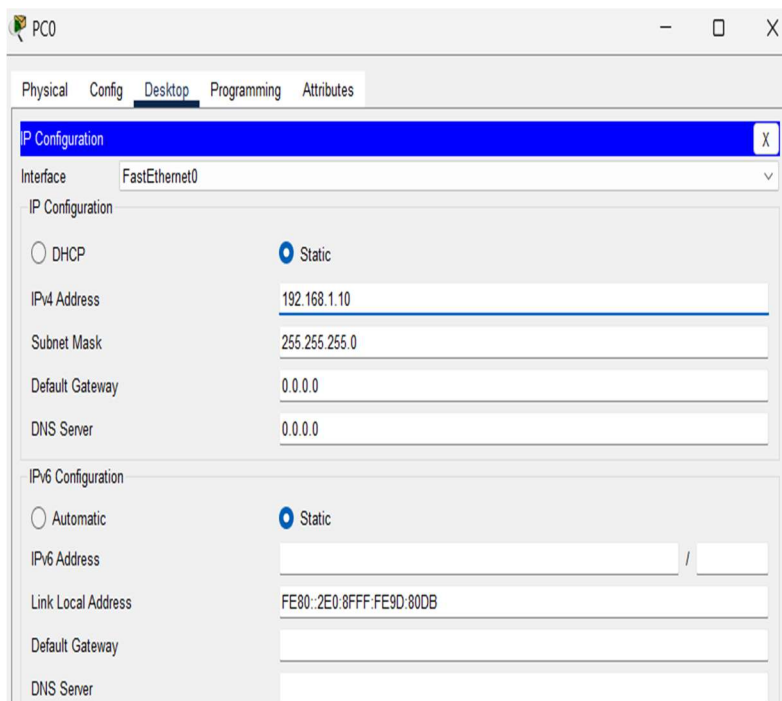
3. Configure static IP addresses, modify MAC addresses, and verify network connectivity using ping and ifconfig commands.
4. Troubleshoot Ethernet Communication with ping and traceroute Using cisco packet tracer

In Cisco Packet Tracer:

1) Network Topology:



2) Configuring Static IP Address:



PC1

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 192.168.1.11

Subnet Mask: 255.255.255.0

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: /

Link Local Address: FE80::2D0:58FF:FE04:ED18

Default Gateway:

DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

3) MAC Address:

PC0

Physical **Config** Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Bluetooth

FastEthernet0

Port Status: ☒ On

Bandwidth: ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex: ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address: 00E0.8F9D.80DB

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 192.168.1.10

Subnet Mask: 255.255.255.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: /

Link Local Address: FE80::2E0:8FFF:FE9D:80DB

PC1

Physical **Config** Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Bluetooth

FastEthernet0

Port Status: ☒ On

Bandwidth: ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex: ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address: 00D0.5804.ED18

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 192.168.1.11

Subnet Mask: 255.255.255.0

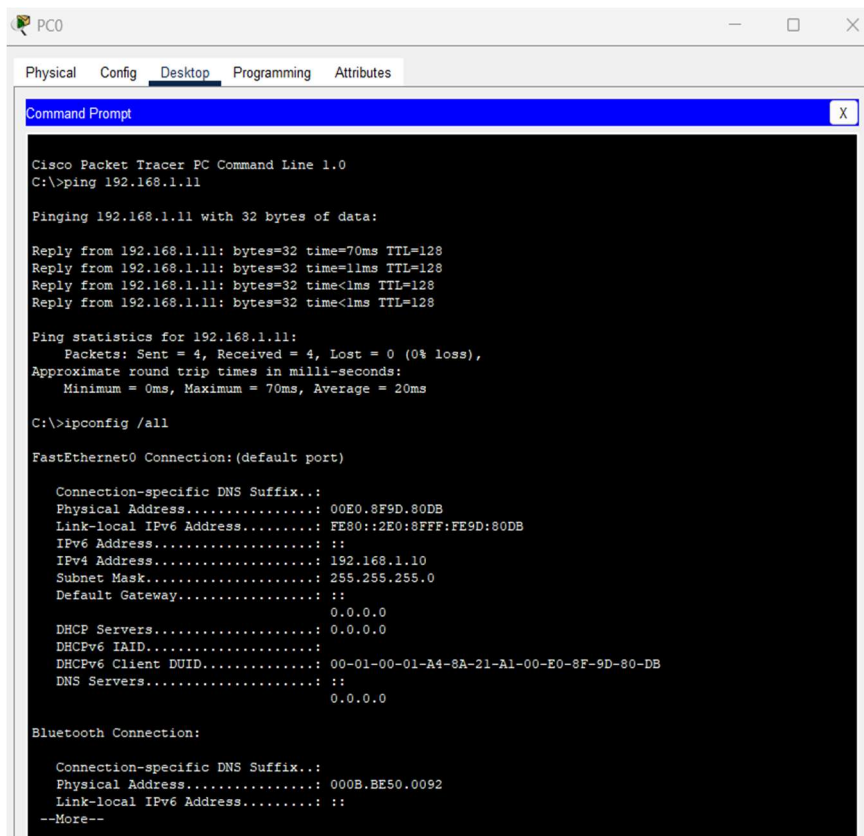
IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: /

Link Local Address: FE80::2D0:58FF:FE04:ED18

4) Ping Connection and ipconfig Commands:



The screenshot shows the Command Prompt window for PC0 in Cisco Packet Tracer. The window has tabs for Physical, Config, Desktop, Programming, and Attributes, with Desktop selected. The Command Prompt title bar says 'Command Prompt' with a close button. The text inside shows the execution of 'ping 192.168.1.11' and 'ipconfig /all' commands. The ping command shows four successful replies from 192.168.1.11 with 32 bytes of data, times ranging from 0ms to 70ms, and a TTL of 128. The ipconfig /all command displays network configuration for FastEthernet0 and Bluetooth connections, including physical addresses, link-local IPv6 addresses, IPv4 addresses (192.168.1.10), subnet masks (255.255.255.0), default gateways, DHCP servers, DHCPv6 IAID, DHCPv6 Client DUID, and DNS servers.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.11

Pinging 192.168.1.11 with 32 bytes of data:

Reply from 192.168.1.11: bytes=32 time=70ms TTL=128
Reply from 192.168.1.11: bytes=32 time=11ms TTL=128
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 70ms, Average = 20ms

C:\>ipconfig /all

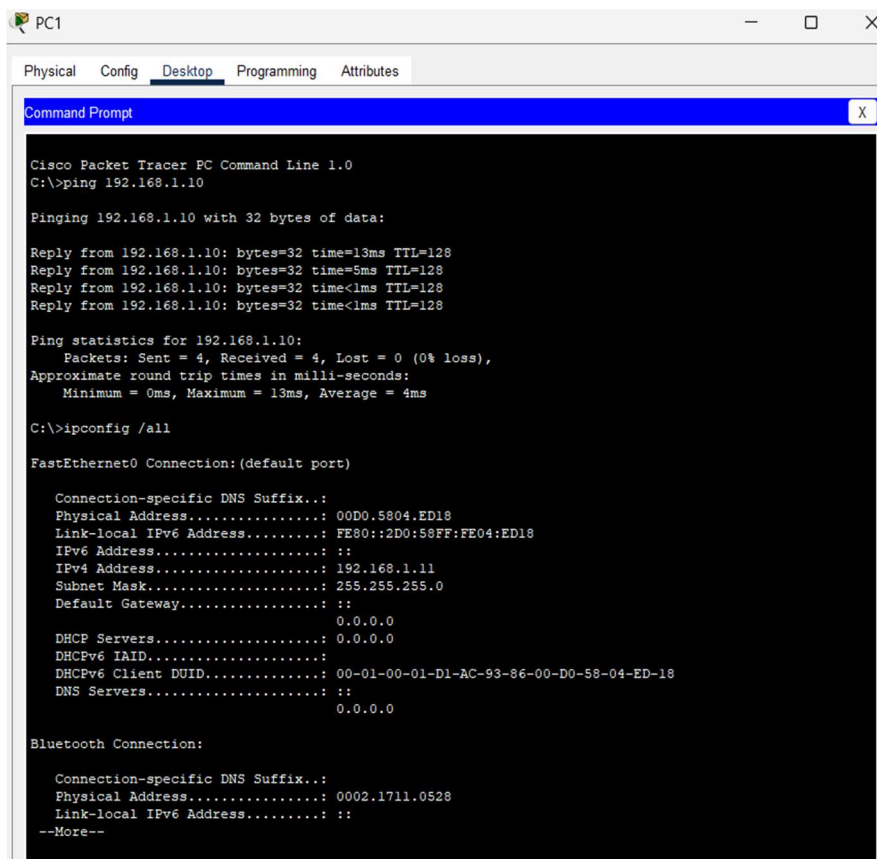
FastEthernet0 Connection: (default port)

    Connection-specific DNS Suffix...:
    Physical Address. ....: 00E0.8F9D.80DB
    Link-local IPv6 Address. ....: FE80::2E0:8FFF:FE9D:80DB
    IPv6 Address. ....: ::
    IPv4 Address. ....: 192.168.1.10
    Subnet Mask. ....: 255.255.255.0
    Default Gateway. ....: ::

    DHCP Servers. ....: 0.0.0.0
    DHCPv6 IAID. ....: 0.0.0.0
    DHCPv6 Client DUID. ....: 00-01-00-01-A4-8A-21-A1-00-E0-8F-9D-80-DB
    DNS Servers. ....: ::
    0.0.0.0

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Physical Address. ....: 000B.BE50.0092
    Link-local IPv6 Address. ....: ::
    --More--
```



The screenshot shows the Command Prompt window for PC1 in Cisco Packet Tracer. The window has tabs for Physical, Config, Desktop, Programming, and Attributes, with Desktop selected. The Command Prompt title bar says 'Command Prompt' with a close button. The text inside shows the execution of 'ping 192.168.1.10' and 'ipconfig /all' commands. The ping command shows four successful replies from 192.168.1.10 with 32 bytes of data, times ranging from 4ms to 13ms, and a TTL of 128. The ipconfig /all command displays network configuration for FastEthernet0 and Bluetooth connections, including physical addresses, link-local IPv6 addresses, IPv4 addresses (192.168.1.11), subnet masks (255.255.255.0), default gateways, DHCP servers, DHCPv6 IAID, DHCPv6 Client DUID, and DNS servers.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time=13ms TTL=128
Reply from 192.168.1.10: bytes=32 time=5ms TTL=128
Reply from 192.168.1.10: bytes=32 time<1ms TTL=128
Reply from 192.168.1.10: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 13ms, Average = 4ms

C:\>ipconfig /all

FastEthernet0 Connection: (default port)

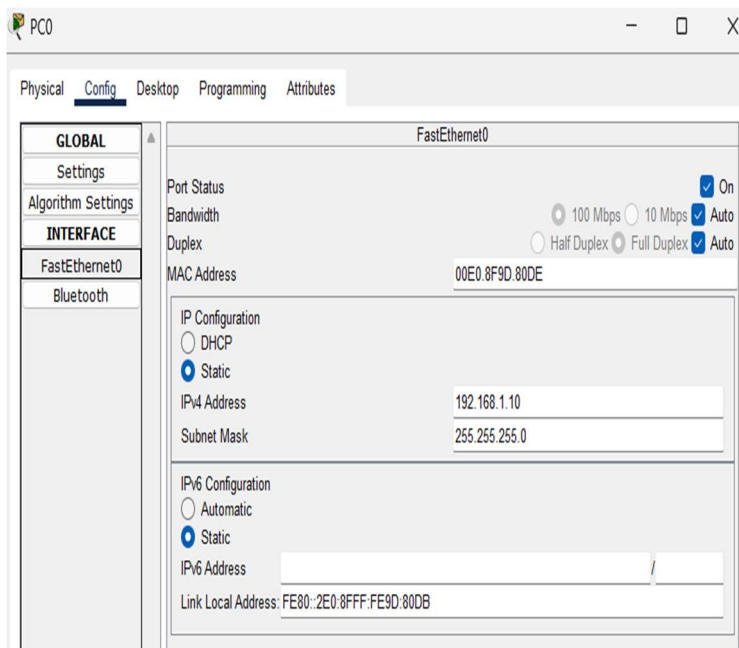
    Connection-specific DNS Suffix...:
    Physical Address. ....: 00D0.5804.ED18
    Link-local IPv6 Address. ....: FE80::2D0:58FF:FE04:ED18
    IPv6 Address. ....: ::
    IPv4 Address. ....: 192.168.1.11
    Subnet Mask. ....: 255.255.255.0
    Default Gateway. ....: ::

    DHCP Servers. ....: 0.0.0.0
    DHCPv6 IAID. ....: 0.0.0.0
    DHCPv6 Client DUID. ....: 00-01-00-01-D1-AC-93-86-00-D0-58-04-ED-18
    DNS Servers. ....: ::
    0.0.0.0

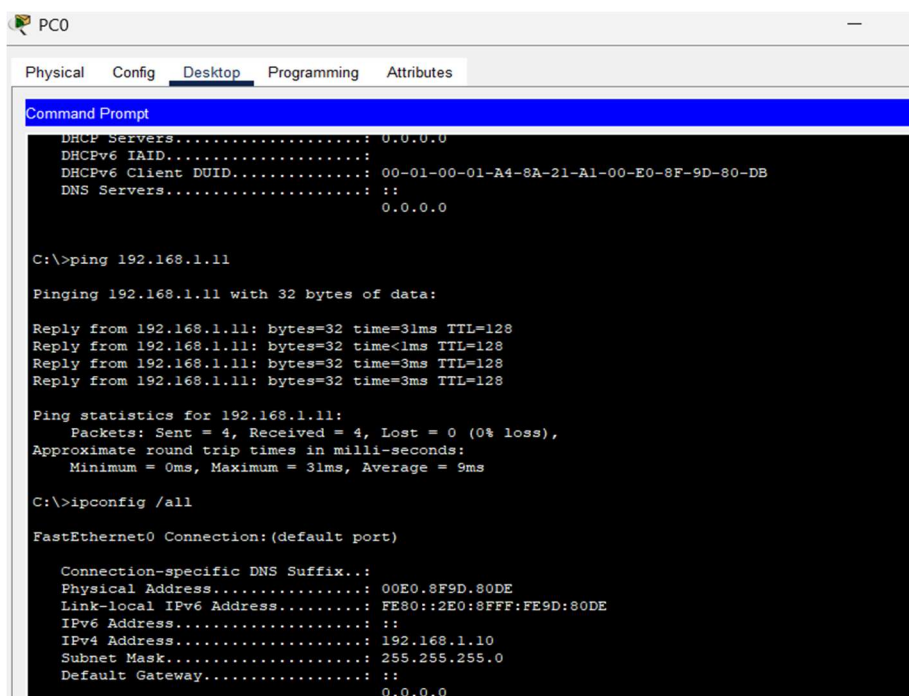
Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Physical Address. ....: 0002.1711.0528
    Link-local IPv6 Address. ....: ::
    --More--
```

5) MAC Address Modification:



6) Ping and Switch MAC Table Check to ensure Connectivity after MAC modification:



```
Switch>
Switch>show mac address-table
          Mac Address Table
-----
Vlan    Mac Address      Type        Ports
----    -
1       00d0.5804.ed18   DYNAMIC     Fa0/2
1       00e0.8f9d.80db   DYNAMIC     Fa0/1
1       00e0.8f9d.80de   DYNAMIC     Fa0/1
Switch>
```

7) Traceroute Command for Troubleshooting:

```
C:\>tracert 192.168.1.11  
Tracing route to 192.168.1.11 over a maximum of 30 hops:  
  1    1 ms      0 ms      3 ms      192.168.1.11
```