CSEC 744 Network Security

Name : Shriram Karpoora Sundara Pandian Course

Title : Switch Features

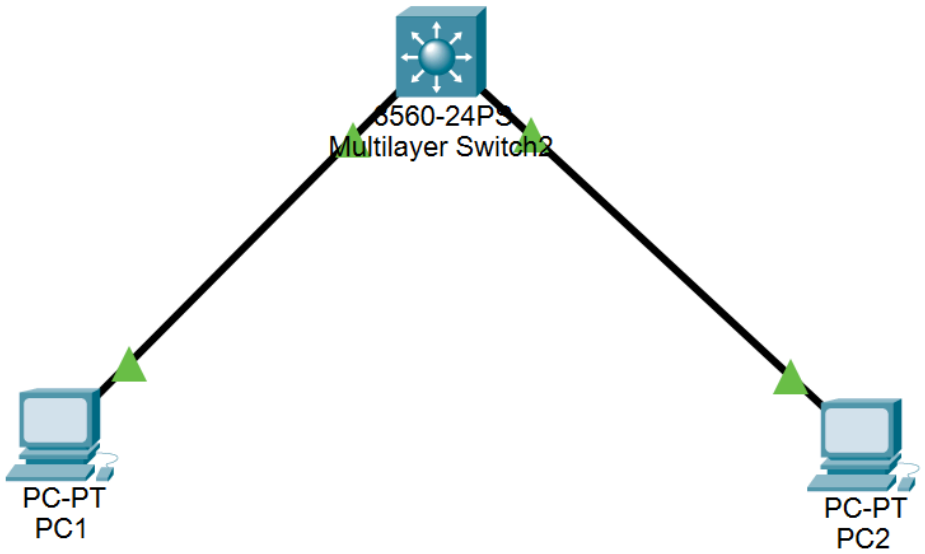
Lab : 3

Chapter : 11 (Network Plus)

(I am using Cisco Packet tracer for my lab and not using physical device)

Exercise 11. 01

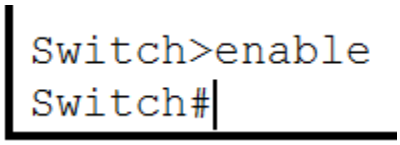
Step 3 :



```
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Step 5 :

A.



B.

```
Switch#delete vlan.dat
Delete filename [vlan.dat]?
Delete flash:/vlan.dat? [confirm]
%Error deleting flash:/vlan.dat (No such file or directory)
```

C.

```
Switch#erase startup-config
Erasing the nvram filesystem will remove all configuration files! Continue? [confirm]
[OK]
Erase of nvram: complete
%SYS-7-NV_BLOCK_INIT: Initialized the geometry of nvram
```

D.

```
Switch#reload
Proceed with reload? [confirm]
C2960 Boot Loader (C2960-HBOOT-M) Version 12.2(25r)FX, RELEASE SOFTWARE (fc4)
Cisco WS-C2960-24TT (RC32300) processor (revision C0) with 21039K bytes of memory.
2960-24TT starting...
Base ethernet MAC Address: 00E0.F7DD.B3B0
Xmodem file system is available.
Initializing Flash...
flashfs[0]: 1 files, 0 directories
flashfs[0]: 0 orphaned files, 0 orphaned directories
flashfs[0]: Total bytes: 64016384
flashfs[0]: Bytes used: 4670455
flashfs[0]: Bytes available: 59345929
flashfs[0]: flashfs fsck took 1 seconds.
...done Initializing Flash.

Boot Sector Filesystem (bs:) installed, fsid: 3
Parameter Block Filesystem (pb:) installed, fsid: 4


Loading "flash:/2960-lanbasek9-mz.150-2.SE4.bin"...
#####################
```

E.

```
Switch>show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
FastEthernet0/1        unassigned      YES manual up                    up
FastEthernet0/2        unassigned      YES manual up                    up
FastEthernet0/3        unassigned      YES manual down                  down
FastEthernet0/4        unassigned      YES manual down                  down
FastEthernet0/5        unassigned      YES manual down                  down
FastEthernet0/6        unassigned      YES manual down                  down
FastEthernet0/7        unassigned      YES manual down                  down
FastEthernet0/8        unassigned      YES manual down                  down
FastEthernet0/9        unassigned      YES manual down                  down
FastEthernet0/10       unassigned      YES manual down                  down
FastEthernet0/11       unassigned      YES manual down                  down
FastEthernet0/12       unassigned      YES manual down                  down
FastEthernet0/13       unassigned      YES manual down                  down
FastEthernet0/14       unassigned      YES manual down                  down
FastEthernet0/15       unassigned      YES manual down                  down
FastEthernet0/16       unassigned      YES manual down                  down
FastEthernet0/17       unassigned      YES manual down                  down
FastEthernet0/18       unassigned      YES manual down                  down
FastEthernet0/19       unassigned      YES manual down                  down
FastEthernet0/20       unassigned      YES manual down                  down
FastEthernet0/21       unassigned      YES manual down                  down
 --More--
```

Step 6 :

```
Switch>show vlan

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
                                                 Fa0/5, Fa0/6, Fa0/7, Fa0/8
                                                 Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                                 Fa0/13, Fa0/14, Fa0/15, Fa0/16
                                                 Fa0/17, Fa0/18, Fa0/19, Fa0/20
                                                 Fa0/21, Fa0/22, Fa0/23, Fa0/24
                                                 Gig0/1, Gig0/2
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0
1003 tr    101003     1500  -      -      -        -    -        0      0
1004 fdnet 101004     1500  -      -      -        ieee -        0      0
1005 trnet 101005     1500  -      -      -        ibm  -        0      0
 --More--
```

Step 7 :
A - G :

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 101
Switch(config-vlan)#name Finance
Switch(config-vlan)#vlan 102
Switch(config-vlan)#name Marketing
Switch(config-vlan)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

Step 8 :

```
VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
                                                 Fa0/5, Fa0/6, Fa0/7, Fa0/8
                                                 Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                                 Fa0/13, Fa0/14, Fa0/15, Fa0/16
                                                 Fa0/17, Fa0/18, Fa0/19, Fa0/20
                                                 Fa0/21, Fa0/22, Fa0/23, Fa0/24
                                                 Gig0/1, Gig0/2
101  Finance                           active
102  Marketing                         active
```

We can see the active status of Finance and Marketing Vlan.

Step 9 :

```
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface f0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 101
Switch(config-if)#exit
```

Step 10 :

```
Switch(config)#interface f0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 102
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

Step 11 :

```
VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/3, Fa0/4, Fa0/5, Fa0/6
                                                 Fa0/7, Fa0/8, Fa0/9, Fa0/10
                                                 Fa0/11, Fa0/12, Fa0/13, Fa0/14
                                                 Fa0/15, Fa0/16, Fa0/17, Fa0/18
                                                 Fa0/19, Fa0/20, Fa0/21, Fa0/22
                                                 Fa0/23, Fa0/24, Gig0/1, Gig0/2
101  Finance                           active    Fa0/1
102  Marketing                         active    Fa0/2
```

Gigabit 1 and 2 is successfully assigned to both Vlan 101 and 102.

Step 12 :

```
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Yes, as said I unable to ping to pc 2.

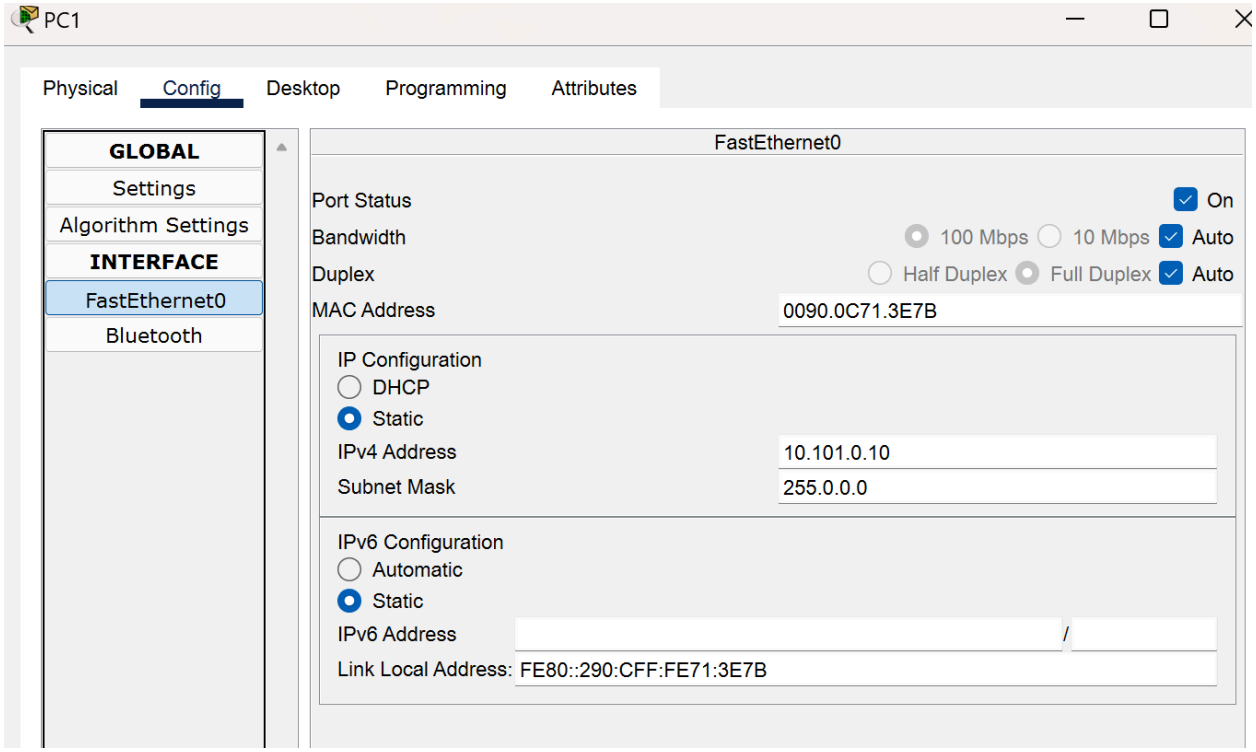
Step 13 :

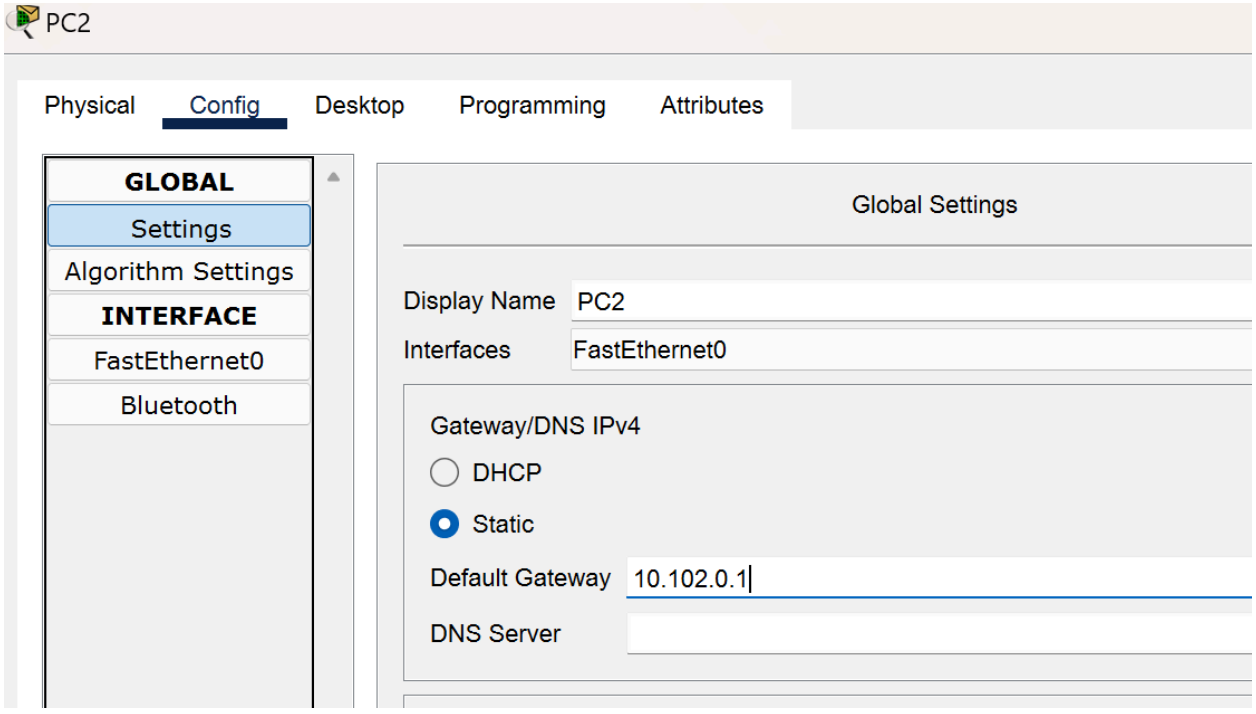
```
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface vlan 101
Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan101, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan101, changed state to up

Switch(config-if)#ip address 10.101.0.1 255.255.0.0
Switch(config-if)#no shutdown
Switch(config-if)#interface vlan 102
Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan102, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan102, changed state to up

Switch(config-if)#ip address 10.102.0.1 255.255.0.0
Switch(config-if)#no shutdown
Switch(config-if)#exit
Switch(config)#ip routing
Switch(config)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

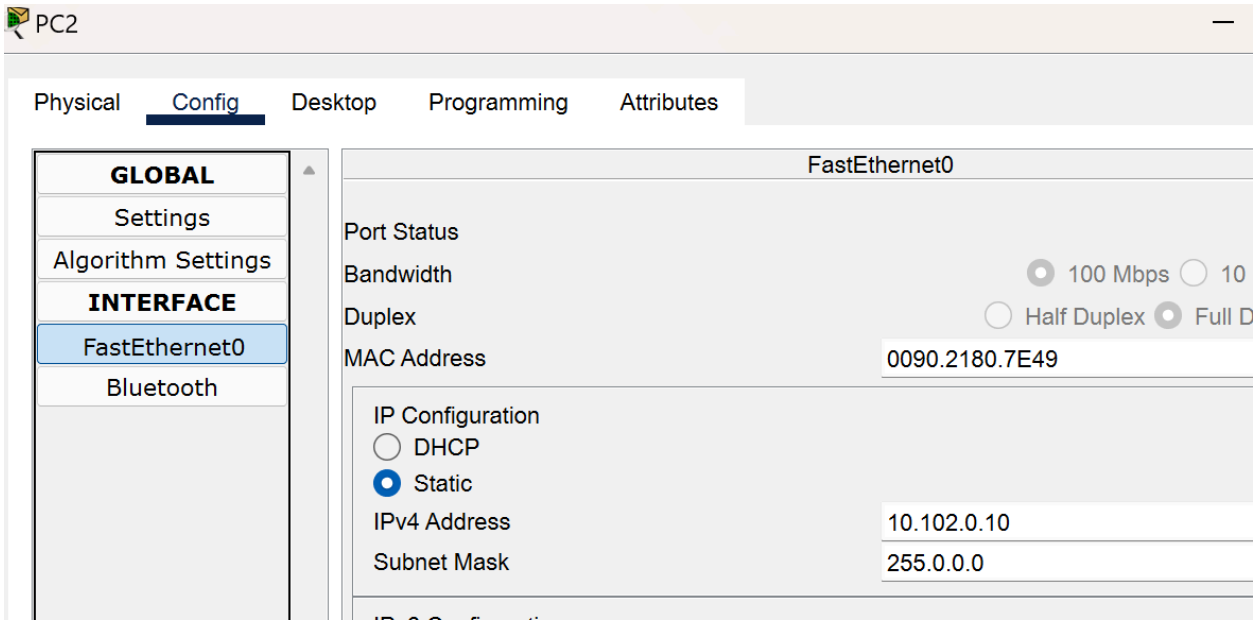
Step 14 :

```
Vlan101                10.101.0.1      YES manual up                    up
Vlan102                10.102.0.1      YES manual up                    up
```

Step 15 :


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
0090.0C71.3E7B
IP Configuration
DHCP
Static
IPv4 Address
10.101.0.10
Subnet Mask
255.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address:
FE80::290:CFF:FE71:3E7B


PC2
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
Global Settings
Display Name
PC2
Interfaces
FastEthernet0
Gateway/DNS IPv4
DHCP
Static
Default Gateway
10.102.0.1
DNS Server

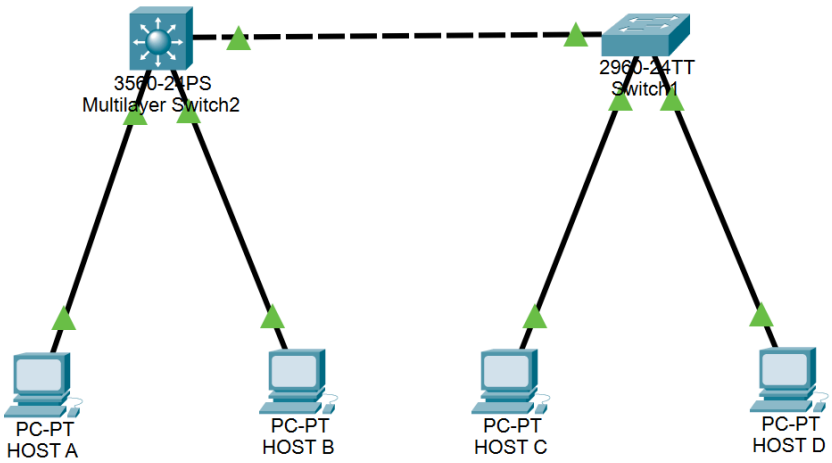


Step 16 :

```
C:\>ping 10.102.0.10

Pinging 10.102.0.10 with 32 bytes of data:

Reply from 10.102.0.10: bytes=32 time<1ms TTL=127
Reply from 10.102.0.10: bytes=32 time<1ms TTL=127
Reply from 10.102.0.10: bytes=32 time<1ms TTL=127
Reply from 10.102.0.10: bytes=32 time<1ms TTL=127

Ping statistics for 10.102.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
Switch#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
```

Exercise 11. 02



Step 3 :

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

FastEthernet0 Connection:(default port)

   Connection-specific DNS Suffix..:
   Link-local IPv6 Address.....: FE80::206:2AFF:FE00:836E
   IPv6 Address.....: ::
   IPv4 Address.....: 10.101.0.20
   Subnet Mask.....: 255.0.0.0
   Default Gateway.....: ::
                                 10.101.0.1
```

```
FastEthernet0 Connection:(default port)

   Connection-specific DNS Suffix..:
   Link-local IPv6 Address.....: FE80::290:2BFF:FE1D:C878
   IPv6 Address.....: ::
   IPv4 Address.....: 10.102.0.20
   Subnet Mask.....: 255.0.0.0
   Default Gateway.....: ::
                                 10.102.0.1
```

Step 4 :

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#
Switch(config)#interface f0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 101
% Access VLAN does not exist. Creating vlan 101
Switch(config-if)#interface f0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 102
% Access VLAN does not exist. Creating vlan 102
```

Step 5 :
On normal switch (Layer 2)

```
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface f0/3
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3,

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3,
```

On multilayer switch

```
Switch>
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface f0/3
Switch(config-if)#switchport trunk encapsulation dot1q
Switch(config-if)#switchport mode trunk
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

Step 6 :
Ping Each PC with other 3 (4 Screenshots)

```
C:\>ping 10.102.0.20

Pinging 10.102.0.20 with 32 bytes of data:

Reply from 10.102.0.20: bytes=32 time<1ms TTL=127
Reply from 10.102.0.20: bytes=32 time<1ms TTL=127
Reply from 10.102.0.20: bytes=32 time<1ms TTL=127
Reply from 10.102.0.20: bytes=32 time<1ms TTL=127

Ping statistics for 10.102.0.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.102.0.10

Pinging 10.102.0.10 with 32 bytes of data:

Reply from 10.102.0.10: bytes=32 time<1ms TTL=127
Reply from 10.102.0.10: bytes=32 time<1ms TTL=127
Reply from 10.102.0.10: bytes=32 time<1ms TTL=127
Reply from 10.102.0.10: bytes=32 time<1ms TTL=127

Ping statistics for 10.102.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.101.0.10

Pinging 10.101.0.10 with 32 bytes of data:

Reply from 10.101.0.10: bytes=32 time<1ms TTL=128
Reply from 10.101.0.10: bytes=32 time<1ms TTL=128
Reply from 10.101.0.10: bytes=32 time<1ms TTL=128
Reply from 10.101.0.10: bytes=32 time=17ms TTL=128

Ping statistics for 10.101.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 17ms, Average = 4ms
```

```
C:\>ping 10.101.0.20

Pinging 10.101.0.20 with 32 bytes of data:

Reply from 10.101.0.20: bytes=32 time<1ms TTL=127
Reply from 10.101.0.20: bytes=32 time<1ms TTL=127
Reply from 10.101.0.20: bytes=32 time<1ms TTL=127
Reply from 10.101.0.20: bytes=32 time<1ms TTL=127

Ping statistics for 10.101.0.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.101.0.10

Pinging 10.101.0.10 with 32 bytes of data:

Reply from 10.101.0.10: bytes=32 time<1ms TTL=127
Reply from 10.101.0.10: bytes=32 time<1ms TTL=127
Reply from 10.101.0.10: bytes=32 time<1ms TTL=127
Reply from 10.101.0.10: bytes=32 time=6ms TTL=127

Ping statistics for 10.101.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 6ms, Average = 1ms

C:\>ping 10.102.0.10

Pinging 10.102.0.10 with 32 bytes of data:

Reply from 10.102.0.10: bytes=32 time<1ms TTL=128
Reply from 10.102.0.10: bytes=32 time<1ms TTL=128
Reply from 10.102.0.10: bytes=32 time=1ms TTL=128
Reply from 10.102.0.10: bytes=32 time<1ms TTL=128

Ping statistics for 10.102.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

```
C:\>ping 10.102.0.10

Pinging 10.102.0.10 with 32 bytes of data:

Reply from 10.102.0.10: bytes=32 time<1ms TTL=127
Reply from 10.102.0.10: bytes=32 time<1ms TTL=127
Reply from 10.102.0.10: bytes=32 time<1ms TTL=127
Reply from 10.102.0.10: bytes=32 time<1ms TTL=127

Ping statistics for 10.102.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.102.0.20

Pinging 10.102.0.20 with 32 bytes of data:

Reply from 10.102.0.20: bytes=32 time<1ms TTL=127
Reply from 10.102.0.20: bytes=32 time<1ms TTL=127
Reply from 10.102.0.20: bytes=32 time<1ms TTL=127
Reply from 10.102.0.20: bytes=32 time<1ms TTL=127

Ping statistics for 10.102.0.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.101.0.290
Ping request could not find host 10.101.0.290. Please check the name and try again.
C:\>ping 10.101.0.20

Pinging 10.101.0.20 with 32 bytes of data:

Reply from 10.101.0.20: bytes=32 time<1ms TTL=128
Reply from 10.101.0.20: bytes=32 time<1ms TTL=128
Reply from 10.101.0.20: bytes=32 time<1ms TTL=128
Reply from 10.101.0.20: bytes=32 time<1ms TTL=128

Ping statistics for 10.101.0.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```

```
C:\>ping 10.101.0.10

Pinging 10.101.0.10 with 32 bytes of data:

Reply from 10.101.0.10: bytes=32 time<1ms TTL=127
Reply from 10.101.0.10: bytes=32 time<1ms TTL=127
Reply from 10.101.0.10: bytes=32 time<1ms TTL=127
Reply from 10.101.0.10: bytes=32 time<1ms TTL=127

Ping statistics for 10.101.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.102.0.20

Pinging 10.102.0.20 with 32 bytes of data:

Reply from 10.102.0.20: bytes=32 time<1ms TTL=128
Reply from 10.102.0.20: bytes=32 time<1ms TTL=128
Reply from 10.102.0.20: bytes=32 time<1ms TTL=128
Reply from 10.102.0.20: bytes=32 time<1ms TTL=128

Ping statistics for 10.102.0.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.101.0.20

Pinging 10.101.0.20 with 32 bytes of data:

Reply from 10.101.0.20: bytes=32 time<1ms TTL=127
Reply from 10.101.0.20: bytes=32 time<1ms TTL=127
Reply from 10.101.0.20: bytes=32 time<1ms TTL=127
Reply from 10.101.0.20: bytes=32 time<1ms TTL=127

Ping statistics for 10.101.0.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Saving state of both switch (Multilayer switch and normal switch)

```
Switch#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
```

```
Switch#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
```

Exercise 11. 03

Step 2 :

```
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface f0/4
Switch(config-if)#no switchport
```

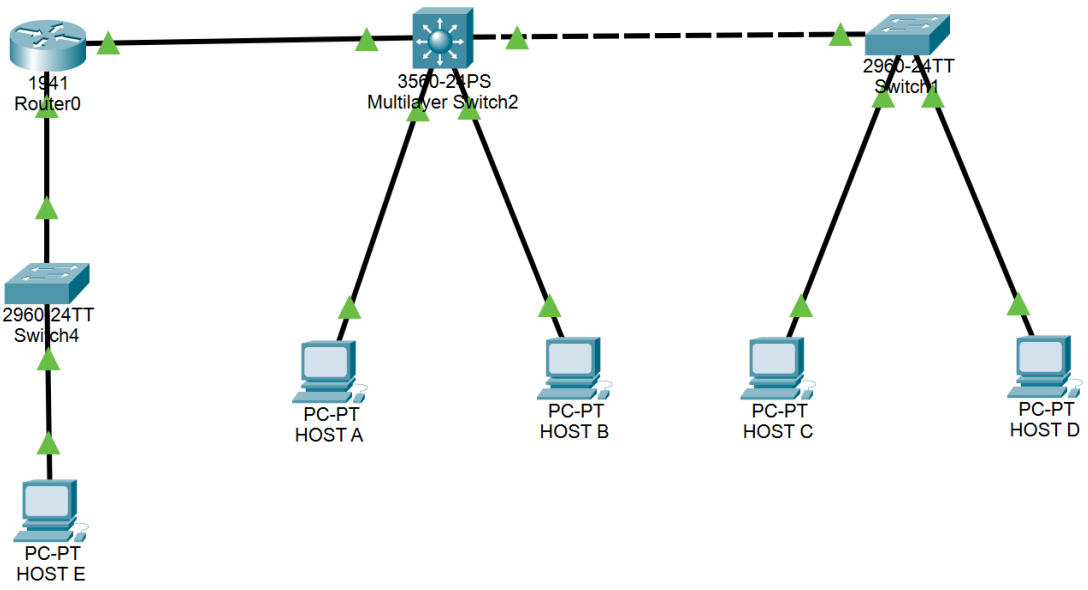
Step 3 :

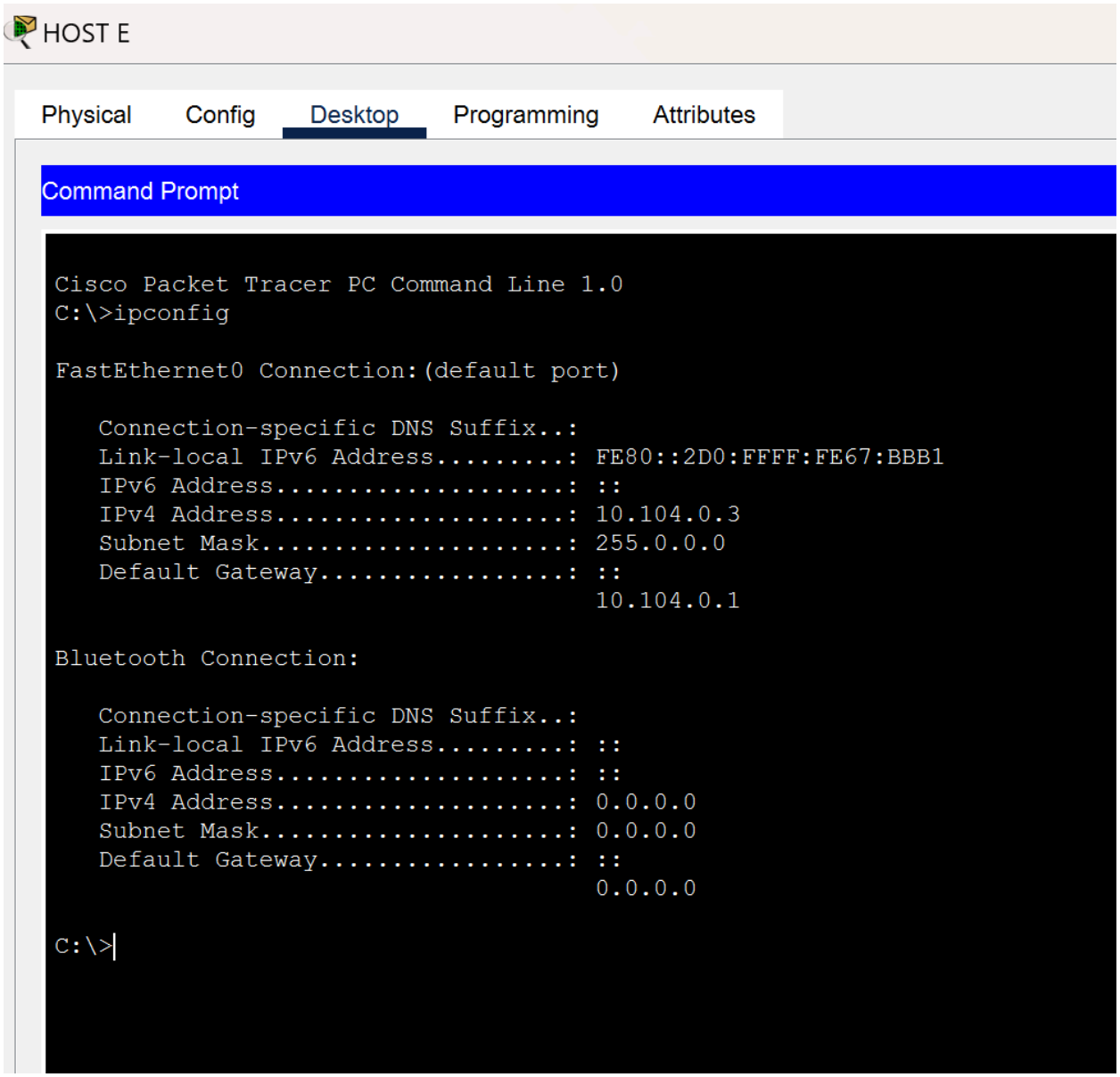
```
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface f0/4
Switch(config-if)#ip address 10.103.0.1 255.255.0.0
Switch(config-if)#no shutdown
Switch(config-if)#
```

Step 4 :

```
Router>
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface g0/0
Router(config-if)#ip address 10.103.0.2
% Incomplete command.
Router(config-if)#ip address 10.103.0.2 255.255.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

Router(config-if)#interface g0/1
Router(config-if)#ip address 10.104.0.1 255.255.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up
```

Step 6 :


1941
Router0
3560-24PS
Multilayer Switch2
2960-24TT
Switch1
2960-24TT
Switch4
PC-PT
HOST A
PC-PT
HOST B
PC-PT
HOST C
PC-PT
HOST D
PC-PT
HOST E


HOST E
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::2D0:FFFF:FE67:BBB1
IPv6 Address.....: ::
IPv4 Address.....: 10.104.0.3
Subnet Mask.....: 255.0.0.0
Default Gateway.....: ::
10.104.0.1
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:\>

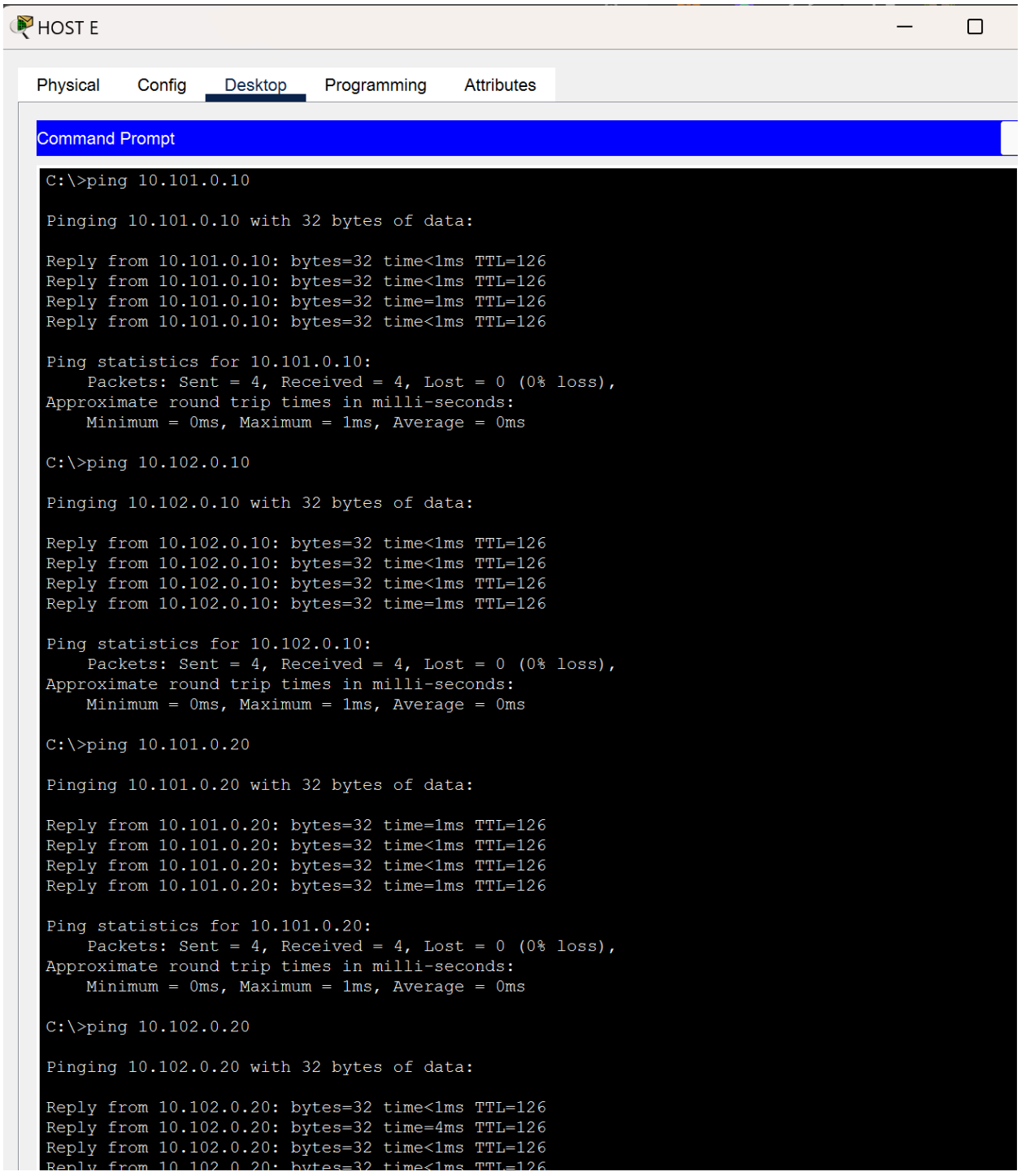
Step 7 :

```
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 10.101.0.0 255.255.0.0 10.103.0.1
Router(config)#ip route 10.102.0.0 255.255.0.0 10.103.0.1
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     10.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
S       10.101.0.0/16 [1/0] via 10.103.0.1
S       10.102.0.0/16 [1/0] via 10.103.0.1
C       10.103.0.0/16 is directly connected, GigabitEthernet0/0
L       10.103.0.2/32 is directly connected, GigabitEthernet0/0
C       10.104.0.0/16 is directly connected, GigabitEthernet0/1
L       10.104.0.1/32 is directly connected, GigabitEthernet0/1
```

Step 8 :

```
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#ip route 10.104.0.0 255.255.0.0 10.103.0.2
Switch(config)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

Step 9 :

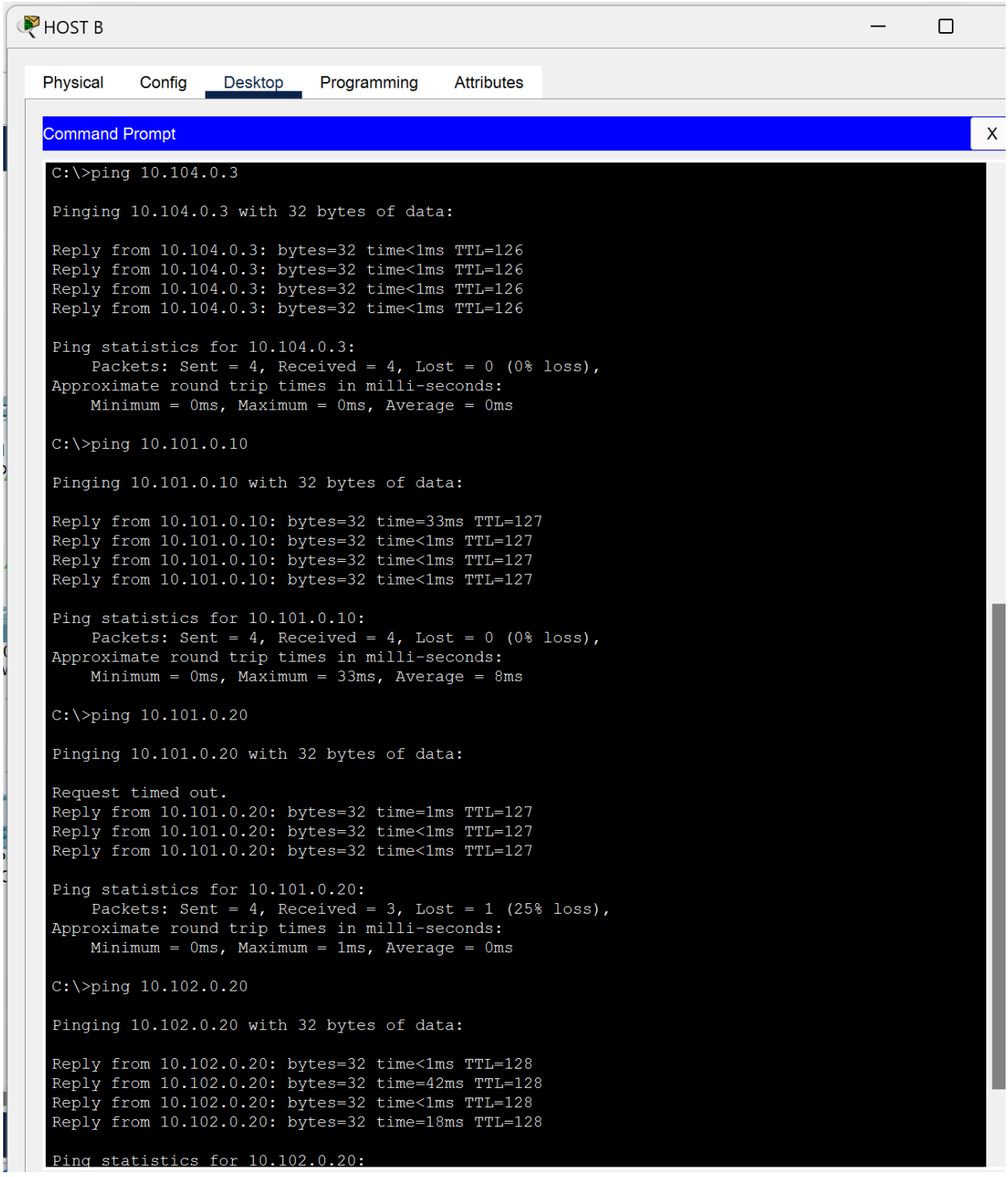

HOST E
Physical
Config
Desktop
Programming
Attributes
Command Prompt
C:\>ping 10.101.0.10
Pinging 10.101.0.10 with 32 bytes of data:
Reply from 10.101.0.10: bytes=32 time<1ms TTL=126
Reply from 10.101.0.10: bytes=32 time<1ms TTL=126
Reply from 10.101.0.10: bytes=32 time=1ms TTL=126
Reply from 10.101.0.10: bytes=32 time<1ms TTL=126
Ping statistics for 10.101.0.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>ping 10.102.0.10
Pinging 10.102.0.10 with 32 bytes of data:
Reply from 10.102.0.10: bytes=32 time<1ms TTL=126
Reply from 10.102.0.10: bytes=32 time<1ms TTL=126
Reply from 10.102.0.10: bytes=32 time<1ms TTL=126
Reply from 10.102.0.10: bytes=32 time=1ms TTL=126
Ping statistics for 10.102.0.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>ping 10.101.0.20
Pinging 10.101.0.20 with 32 bytes of data:
Reply from 10.101.0.20: bytes=32 time=1ms TTL=126
Reply from 10.101.0.20: bytes=32 time<1ms TTL=126
Reply from 10.101.0.20: bytes=32 time<1ms TTL=126
Reply from 10.101.0.20: bytes=32 time=1ms TTL=126
Ping statistics for 10.101.0.20:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>ping 10.102.0.20
Pinging 10.102.0.20 with 32 bytes of data:
Reply from 10.102.0.20: bytes=32 time<1ms TTL=126
Reply from 10.102.0.20: bytes=32 time=4ms TTL=126
Reply from 10.102.0.20: bytes=32 time<1ms TTL=126

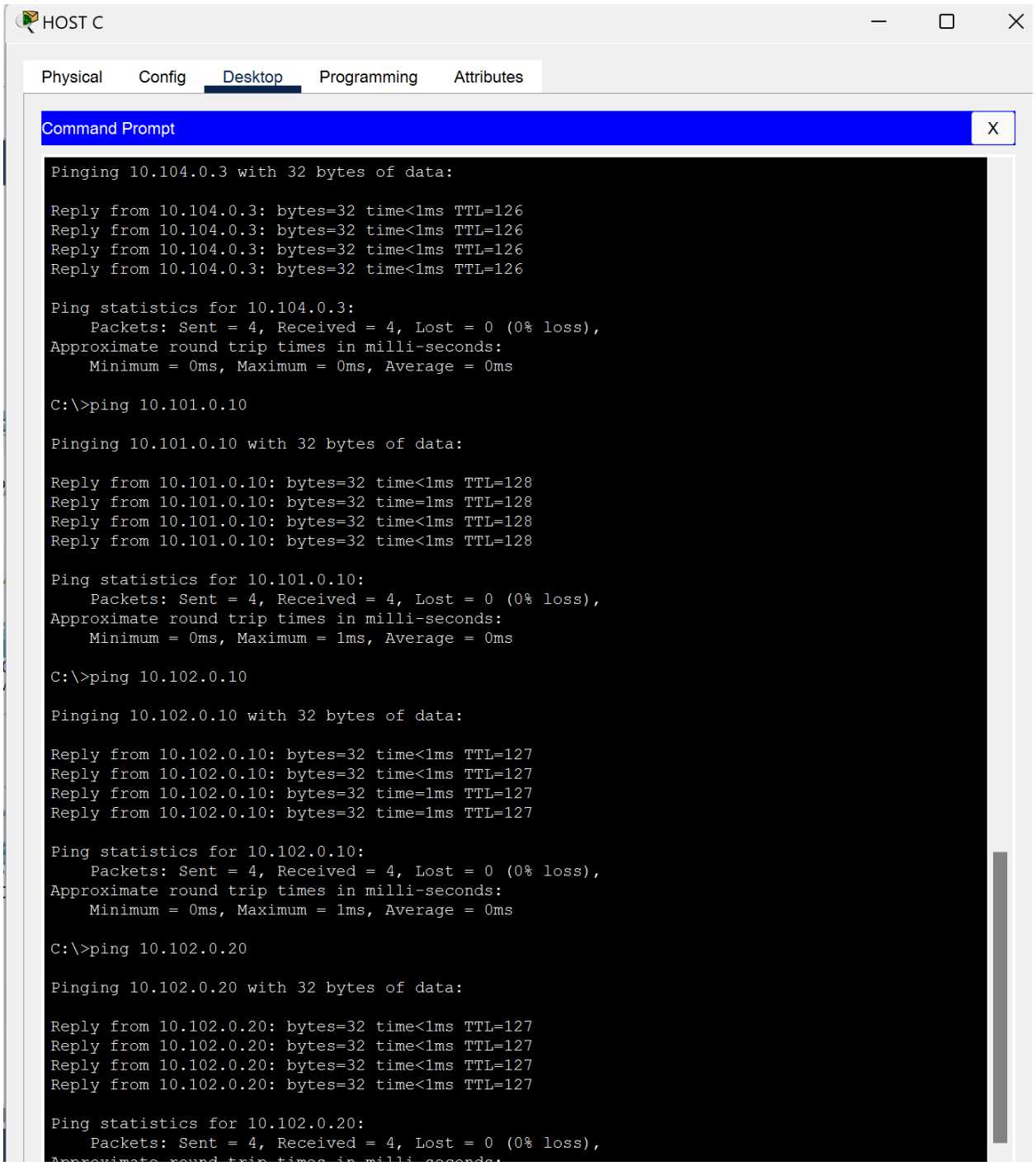
HOST A

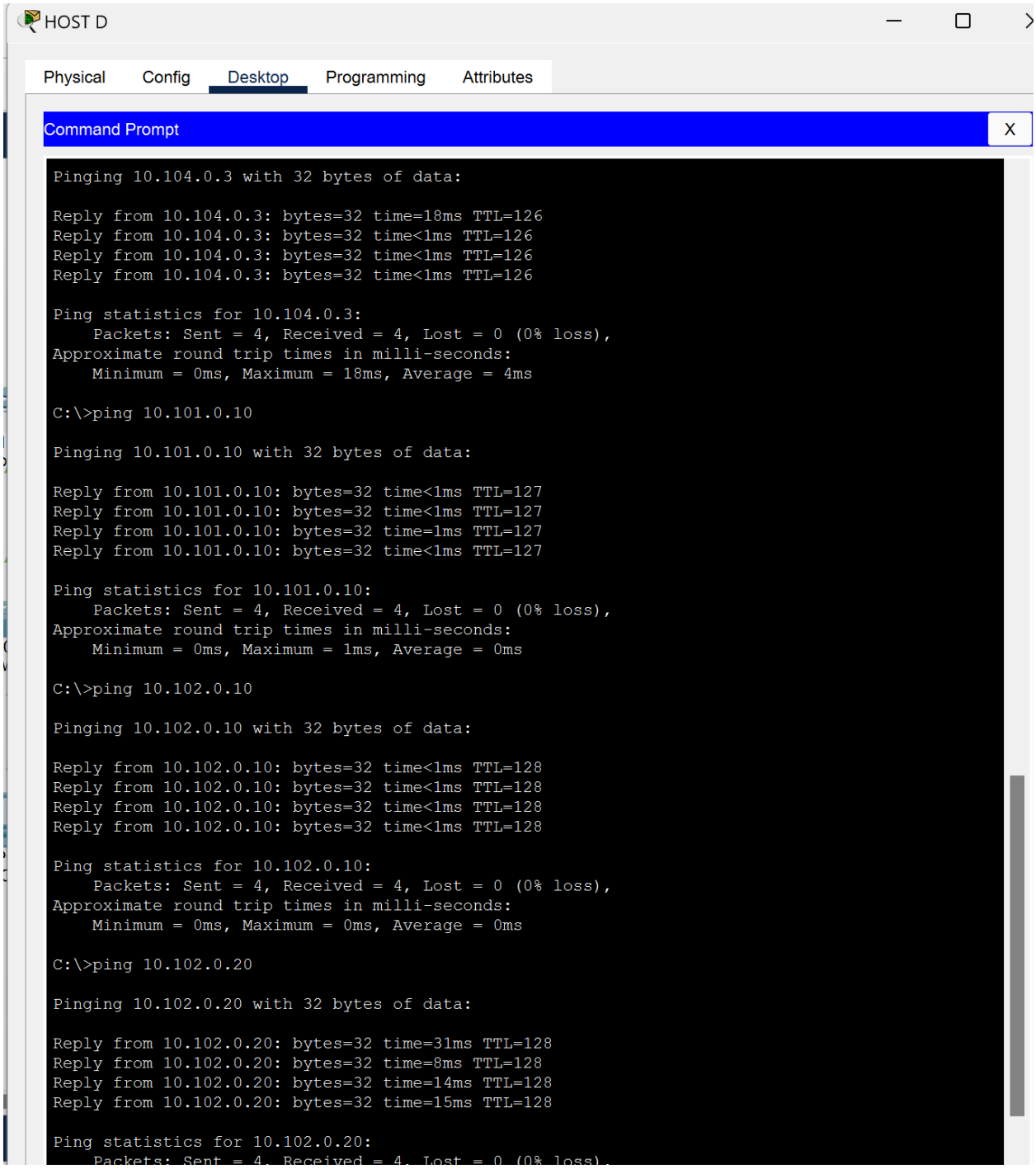
Physical | Config | Desktop | Programming | Attributes

Command Prompt

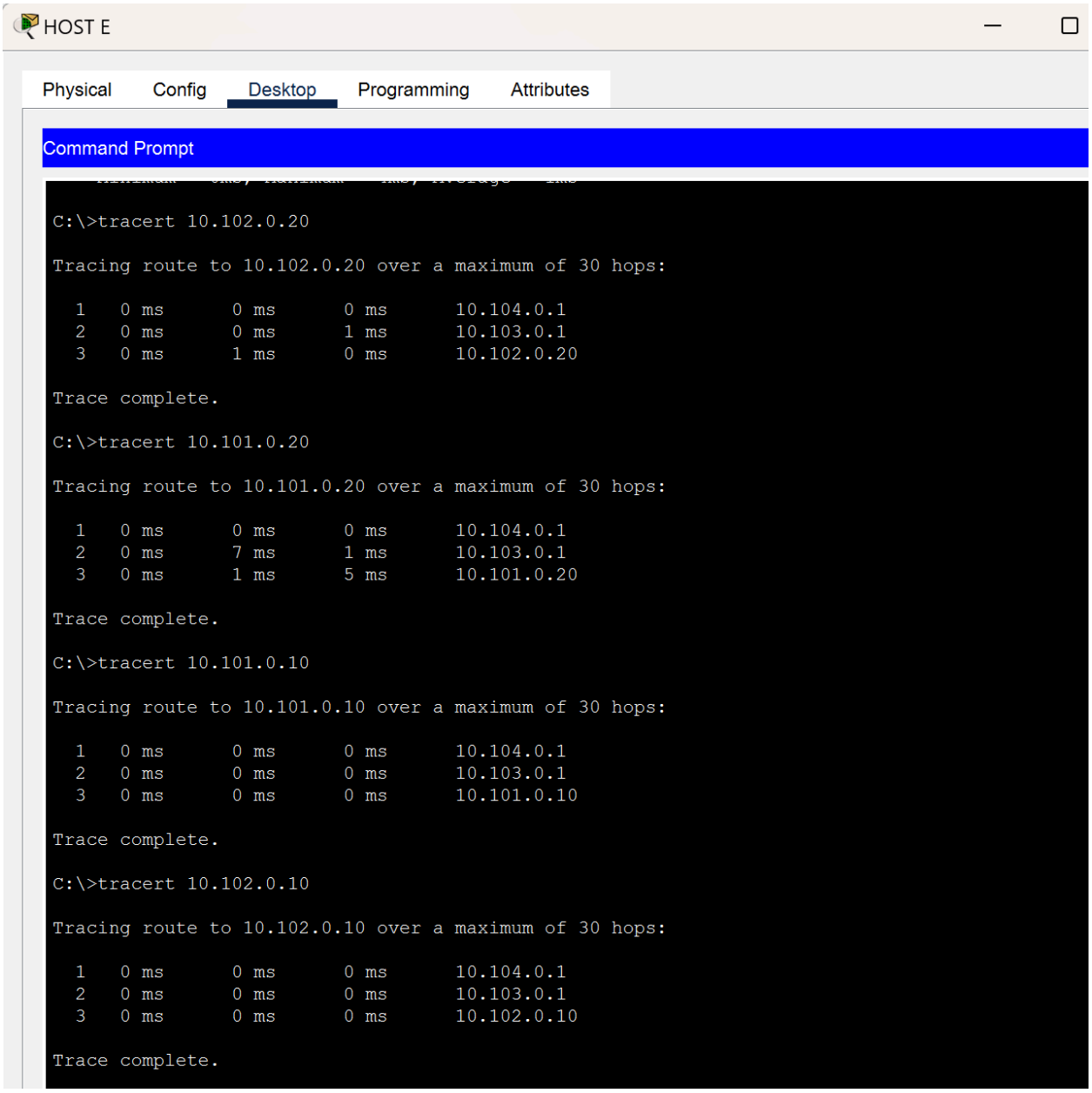
```
C:\>ping 10.104.0.3

Pinging 10.104.0.3 with 32 bytes of data:

Reply from 10.104.0.3: bytes=32 time<1ms TTL=126
Reply from 10.104.0.3: bytes=32 time<1ms TTL=126
Reply from 10.104.0.3: bytes=32 time<1ms TTL=126
Reply from 10.104.0.3: bytes=32 time<1ms TTL=126

Ping statistics for 10.104.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.102.0.10

Pinging 10.102.0.10 with 32 bytes of data:

Request timed out.
Reply from 10.102.0.10: bytes=32 time<1ms TTL=127
Reply from 10.102.0.10: bytes=32 time<1ms TTL=127
Reply from 10.102.0.10: bytes=32 time<1ms TTL=127

Ping statistics for 10.102.0.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.101.0.20

Pinging 10.101.0.20 with 32 bytes of data:

Reply from 10.101.0.20: bytes=32 time<1ms TTL=128
Reply from 10.101.0.20: bytes=32 time<1ms TTL=128
Reply from 10.101.0.20: bytes=32 time=1ms TTL=128
Reply from 10.101.0.20: bytes=32 time<1ms TTL=128

Ping statistics for 10.101.0.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 10.102.0.20

Pinging 10.102.0.20 with 32 bytes of data:

Request timed out.
Reply from 10.102.0.20: bytes=32 time<1ms TTL=127
Reply from 10.102.0.20: bytes=32 time<1ms TTL=127
Reply from 10.102.0.20: bytes=32 time<1ms TTL=127
```

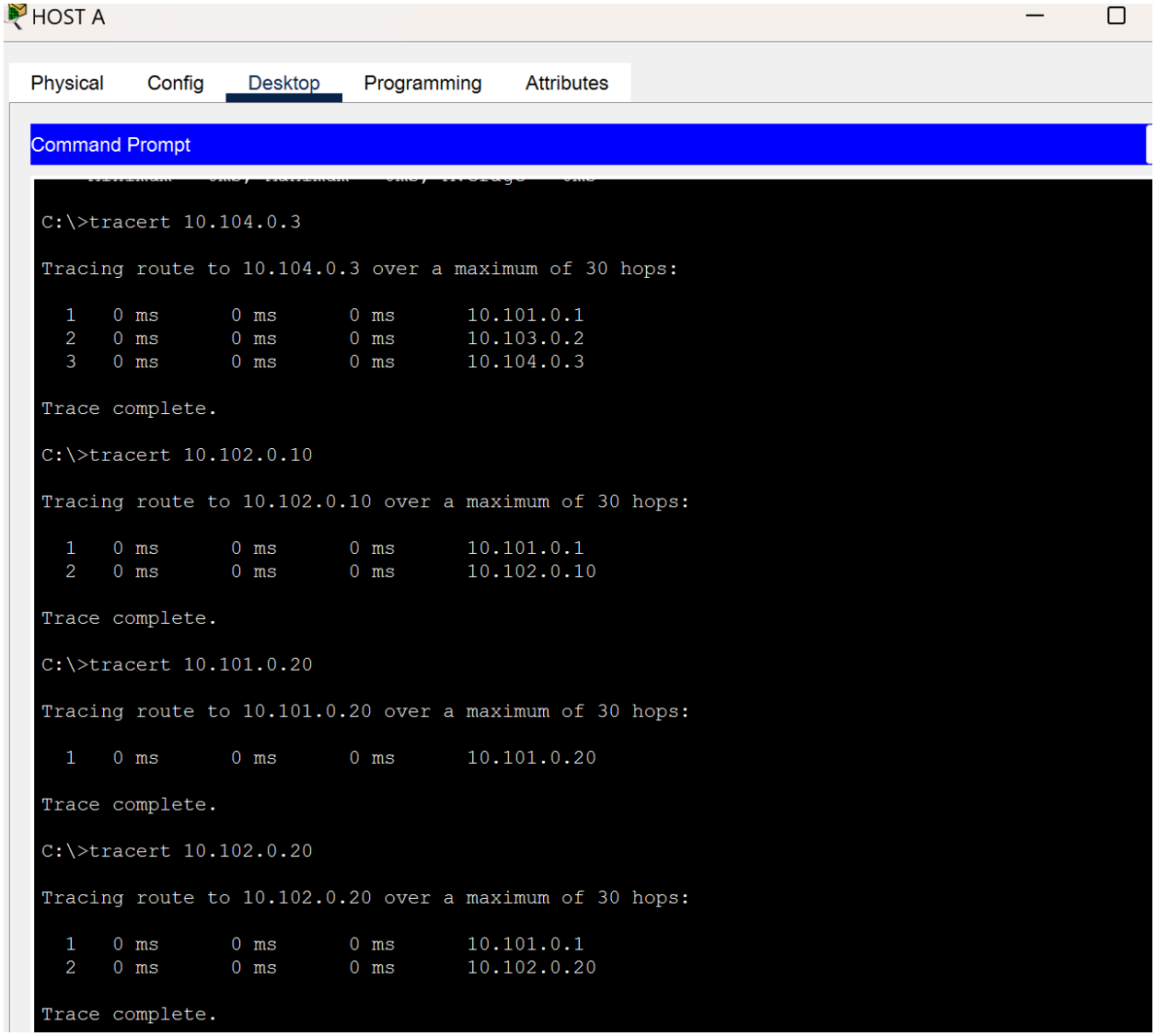

HOST B
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
C:\>ping 10.104.0.3
Pinging 10.104.0.3 with 32 bytes of data:
Reply from 10.104.0.3: bytes=32 time<1ms TTL=126
Reply from 10.104.0.3: bytes=32 time<1ms TTL=126
Reply from 10.104.0.3: bytes=32 time<1ms TTL=126
Reply from 10.104.0.3: bytes=32 time<1ms TTL=126
Ping statistics for 10.104.0.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 10.101.0.10
Pinging 10.101.0.10 with 32 bytes of data:
Reply from 10.101.0.10: bytes=32 time=33ms TTL=127
Reply from 10.101.0.10: bytes=32 time<1ms TTL=127
Reply from 10.101.0.10: bytes=32 time<1ms TTL=127
Reply from 10.101.0.10: bytes=32 time<1ms TTL=127
Ping statistics for 10.101.0.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 33ms, Average = 8ms
C:\>ping 10.101.0.20
Pinging 10.101.0.20 with 32 bytes of data:
Request timed out.
Reply from 10.101.0.20: bytes=32 time=1ms TTL=127
Reply from 10.101.0.20: bytes=32 time<1ms TTL=127
Reply from 10.101.0.20: bytes=32 time<1ms TTL=127
Ping statistics for 10.101.0.20:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>ping 10.102.0.20
Pinging 10.102.0.20 with 32 bytes of data:
Reply from 10.102.0.20: bytes=32 time<1ms TTL=128
Reply from 10.102.0.20: bytes=32 time=42ms TTL=128
Reply from 10.102.0.20: bytes=32 time<1ms TTL=128
Reply from 10.102.0.20: bytes=32 time=18ms TTL=128
Ping statistics for 10.102.0.20:

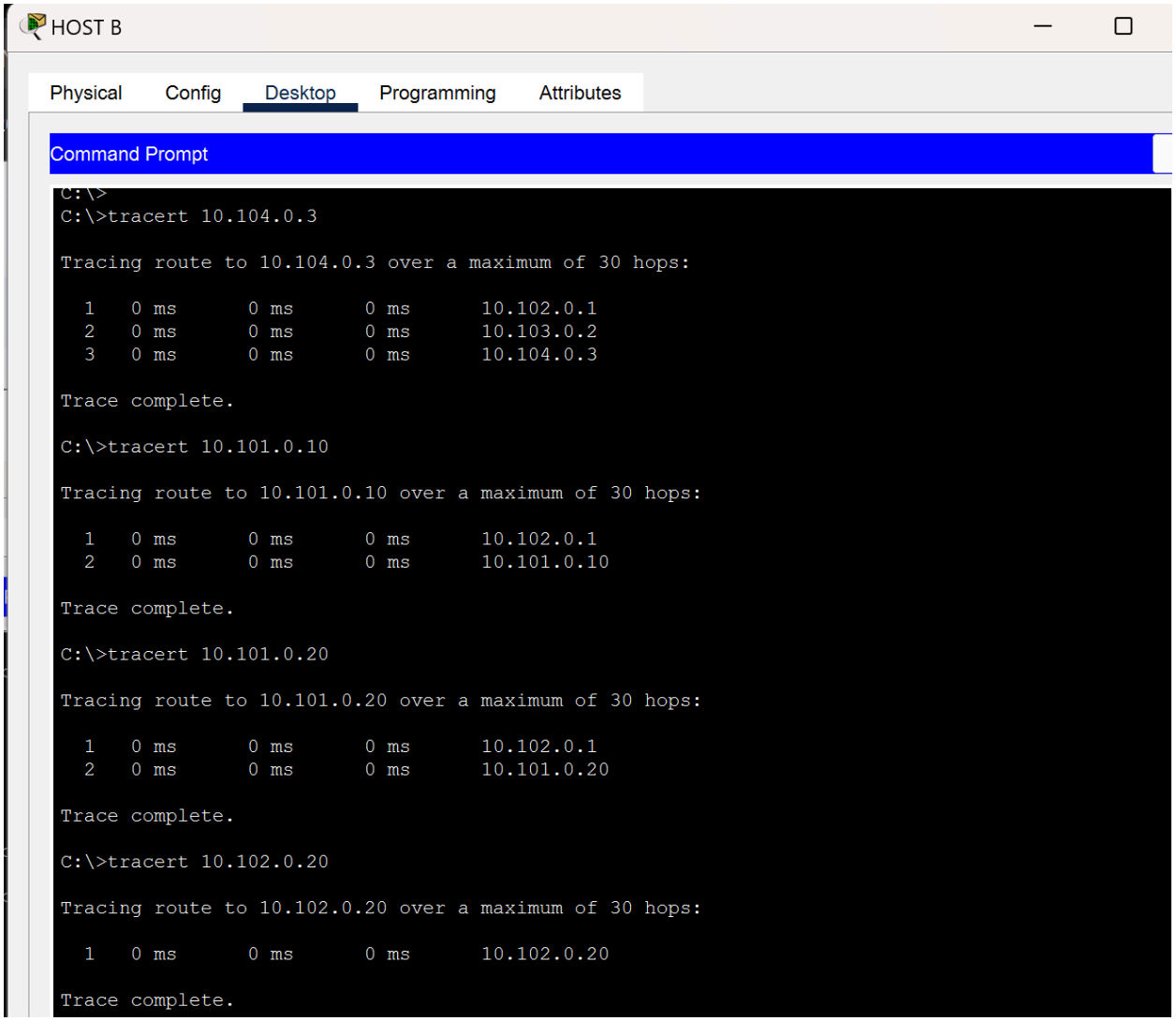

HOST C
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Pinging 10.104.0.3 with 32 bytes of data:
Reply from 10.104.0.3: bytes=32 time<1ms TTL=126
Reply from 10.104.0.3: bytes=32 time<1ms TTL=126
Reply from 10.104.0.3: bytes=32 time<1ms TTL=126
Reply from 10.104.0.3: bytes=32 time<1ms TTL=126
Ping statistics for 10.104.0.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 10.101.0.10
Pinging 10.101.0.10 with 32 bytes of data:
Reply from 10.101.0.10: bytes=32 time<1ms TTL=128
Reply from 10.101.0.10: bytes=32 time=1ms TTL=128
Reply from 10.101.0.10: bytes=32 time<1ms TTL=128
Reply from 10.101.0.10: bytes=32 time<1ms TTL=128
Ping statistics for 10.101.0.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>ping 10.102.0.10
Pinging 10.102.0.10 with 32 bytes of data:
Reply from 10.102.0.10: bytes=32 time<1ms TTL=127
Reply from 10.102.0.10: bytes=32 time<1ms TTL=127
Reply from 10.102.0.10: bytes=32 time=1ms TTL=127
Reply from 10.102.0.10: bytes=32 time=1ms TTL=127
Ping statistics for 10.102.0.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>ping 10.102.0.20
Pinging 10.102.0.20 with 32 bytes of data:
Reply from 10.102.0.20: bytes=32 time<1ms TTL=127
Reply from 10.102.0.20: bytes=32 time<1ms TTL=127
Reply from 10.102.0.20: bytes=32 time<1ms TTL=127
Reply from 10.102.0.20: bytes=32 time<1ms TTL=127
Ping statistics for 10.102.0.20:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

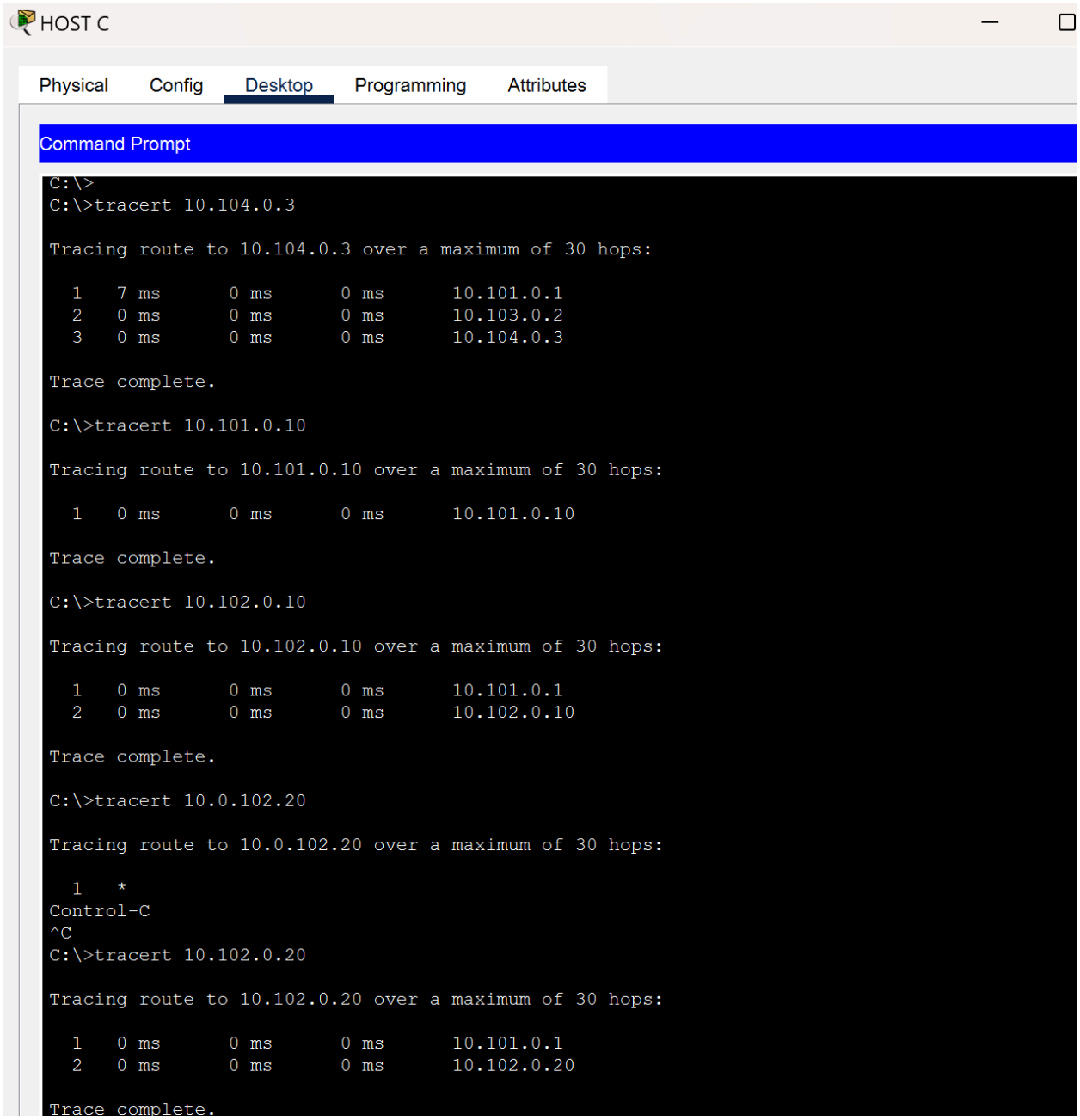

HOST D
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Pinging 10.104.0.3 with 32 bytes of data:
Reply from 10.104.0.3: bytes=32 time=18ms TTL=126
Reply from 10.104.0.3: bytes=32 time<1ms TTL=126
Reply from 10.104.0.3: bytes=32 time<1ms TTL=126
Reply from 10.104.0.3: bytes=32 time<1ms TTL=126
Ping statistics for 10.104.0.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 18ms, Average = 4ms
C:\>ping 10.101.0.10
Pinging 10.101.0.10 with 32 bytes of data:
Reply from 10.101.0.10: bytes=32 time<1ms TTL=127
Reply from 10.101.0.10: bytes=32 time<1ms TTL=127
Reply from 10.101.0.10: bytes=32 time=1ms TTL=127
Reply from 10.101.0.10: bytes=32 time<1ms TTL=127
Ping statistics for 10.101.0.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>ping 10.102.0.10
Pinging 10.102.0.10 with 32 bytes of data:
Reply from 10.102.0.10: bytes=32 time<1ms TTL=128
Reply from 10.102.0.10: bytes=32 time<1ms TTL=128
Reply from 10.102.0.10: bytes=32 time<1ms TTL=128
Reply from 10.102.0.10: bytes=32 time<1ms TTL=128
Ping statistics for 10.102.0.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 10.102.0.20
Pinging 10.102.0.20 with 32 bytes of data:
Reply from 10.102.0.20: bytes=32 time=31ms TTL=128
Reply from 10.102.0.20: bytes=32 time=8ms TTL=128
Reply from 10.102.0.20: bytes=32 time=14ms TTL=128
Reply from 10.102.0.20: bytes=32 time=15ms TTL=128
Ping statistics for 10.102.0.20:

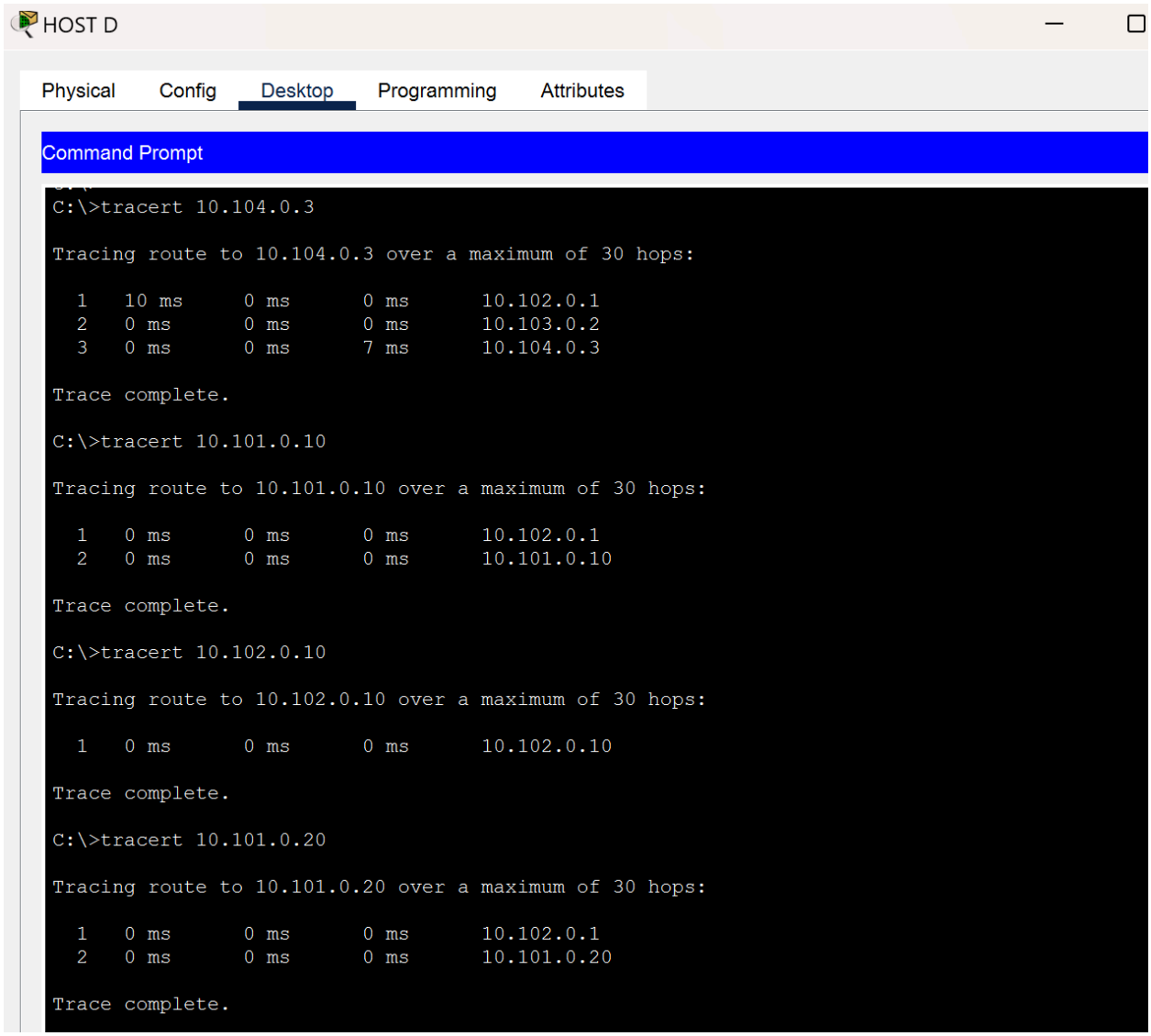
Step 10 : Traceroute all the other pc's




HOST A
Physical
Config
Desktop
Programming
Attributes
Command Prompt
C:\>tracert 10.104.0.3
Tracing route to 10.104.0.3 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.101.0.1
2 0 ms 0 ms 0 ms 10.103.0.2
3 0 ms 0 ms 0 ms 10.104.0.3
Trace complete.
C:\>tracert 10.102.0.10
Tracing route to 10.102.0.10 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.101.0.1
2 0 ms 0 ms 0 ms 10.102.0.10
Trace complete.
C:\>tracert 10.101.0.20
Tracing route to 10.101.0.20 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.101.0.20
Trace complete.
C:\>tracert 10.102.0.20
Tracing route to 10.102.0.20 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.101.0.1
2 0 ms 0 ms 0 ms 10.102.0.20
Trace complete.

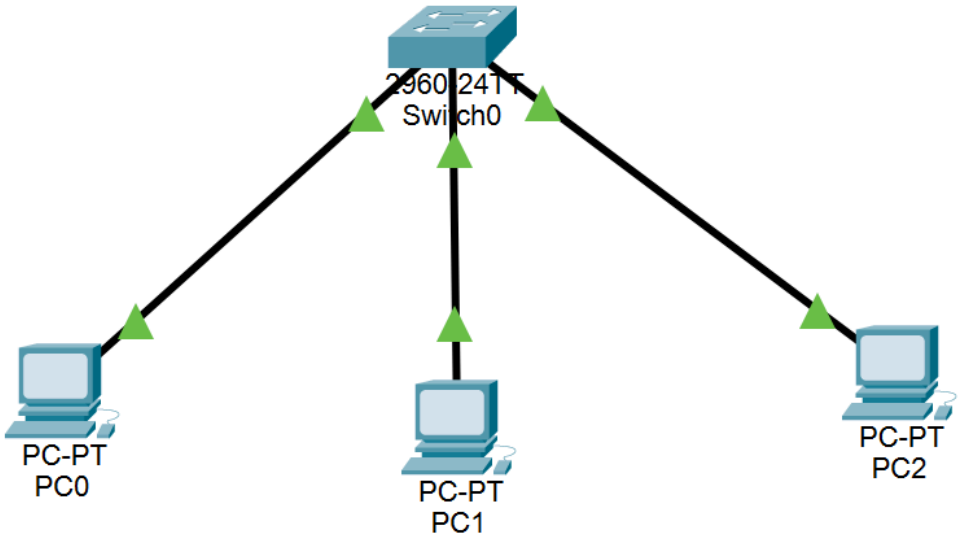

HOST B
Physical
Config
Desktop
Programming
Attributes
Command Prompt
C:\>
C:\>tracert 10.104.0.3
Tracing route to 10.104.0.3 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.102.0.1
2 0 ms 0 ms 0 ms 10.103.0.2
3 0 ms 0 ms 0 ms 10.104.0.3
Trace complete.
C:\>tracert 10.101.0.10
Tracing route to 10.101.0.10 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.102.0.1
2 0 ms 0 ms 0 ms 10.101.0.10
Trace complete.
C:\>tracert 10.101.0.20
Tracing route to 10.101.0.20 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.102.0.1
2 0 ms 0 ms 0 ms 10.101.0.20
Trace complete.
C:\>tracert 10.102.0.20
Tracing route to 10.102.0.20 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.102.0.20
Trace complete.


HOST C
Physical
Config
Desktop
Programming
Attributes
Command Prompt
C:\>
C:\>tracert 10.104.0.3
Tracing route to 10.104.0.3 over a maximum of 30 hops:
1 7 ms 0 ms 0 ms 10.101.0.1
2 0 ms 0 ms 0 ms 10.103.0.2
3 0 ms 0 ms 0 ms 10.104.0.3
Trace complete.
C:\>tracert 10.101.0.10
Tracing route to 10.101.0.10 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.101.0.10
Trace complete.
C:\>tracert 10.102.0.10
Tracing route to 10.102.0.10 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.101.0.1
2 0 ms 0 ms 0 ms 10.102.0.10
Trace complete.
C:\>tracert 10.0.102.20
Tracing route to 10.0.102.20 over a maximum of 30 hops:
1 *
Control-C
^C
C:\>tracert 10.102.0.20
Tracing route to 10.102.0.20 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.101.0.1
2 0 ms 0 ms 0 ms 10.102.0.20
Trace complete.


HOST D
Physical
Config
Desktop
Programming
Attributes
Command Prompt
C:\>tracert 10.104.0.3
Tracing route to 10.104.0.3 over a maximum of 30 hops:
1 10 ms 0 ms 0 ms 10.102.0.1
2 0 ms 0 ms 0 ms 10.103.0.2
3 0 ms 0 ms 7 ms 10.104.0.3
Trace complete.
C:\>tracert 10.101.0.10
Tracing route to 10.101.0.10 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.102.0.1
2 0 ms 0 ms 0 ms 10.101.0.10
Trace complete.
C:\>tracert 10.102.0.10
Tracing route to 10.102.0.10 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.102.0.10
Trace complete.
C:\>tracert 10.101.0.20
Tracing route to 10.101.0.20 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.102.0.1
2 0 ms 0 ms 0 ms 10.101.0.20
Trace complete.

Exercise 11. 04 :

Step 2 :



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::202:4AFF:FE84:7D78
   IPv6 Address.....: ::
   IPv4 Address.....: 10.1.0.1
   Subnet Mask.....: 255.0.0.0
   Default Gateway.....: ::
                                 0.0.0.0
```

```
Device Name: Switch0
Custom Device Model: 2960 IOS15
Hostname: Switch

Port                 Link   VLAN   IP Address          MAC Address
FastEthernet0/1      Up     1      --                  0001.64E0.A301
FastEthernet0/2      Up     1      --                  0001.64E0.A302
FastEthernet0/3      Up     1      --                  0001.64E0.A303
```

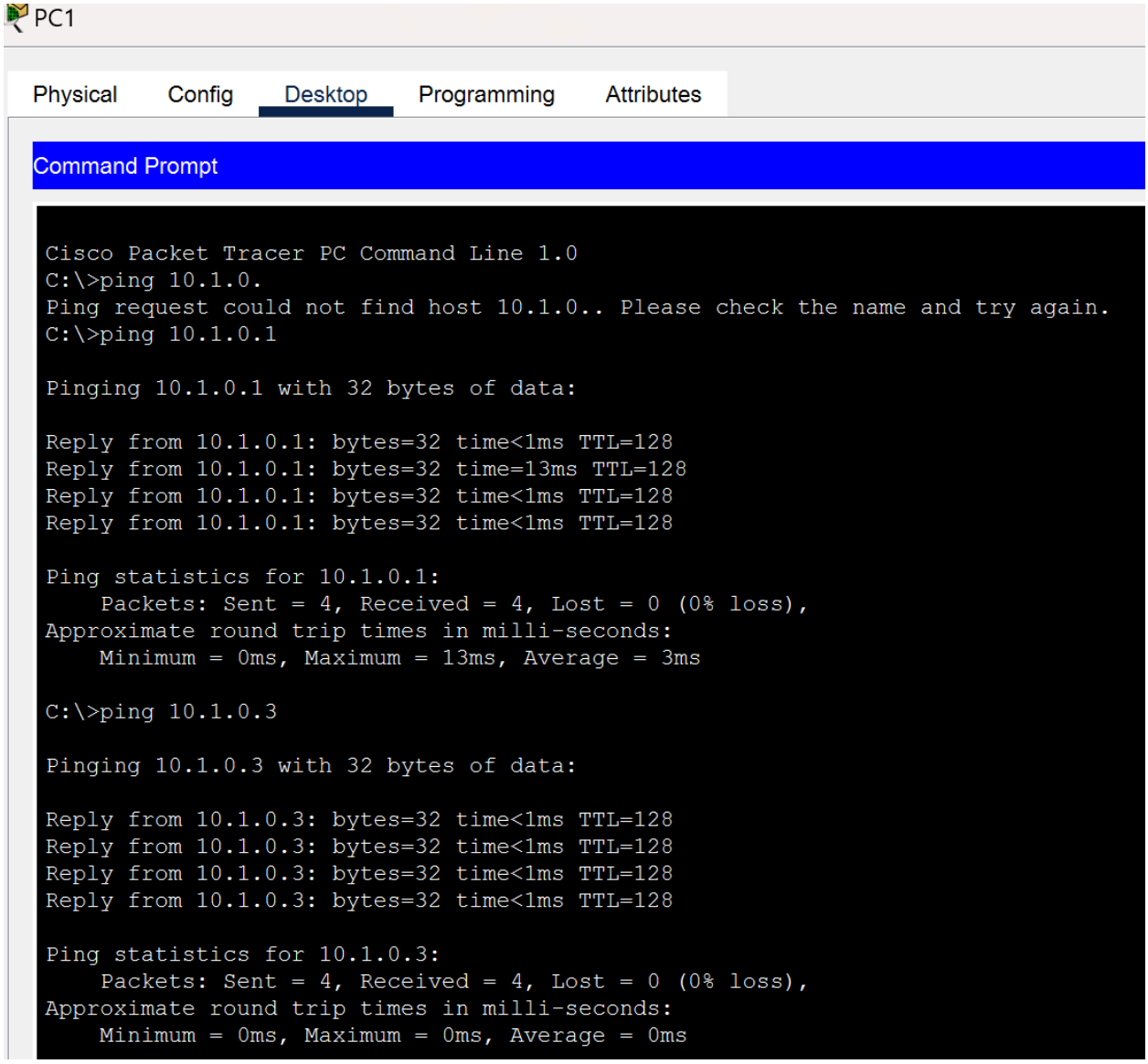
```
Switch#delete vlan.dat
Delete filename [vlan.dat]?
Delete flash:/vlan.dat? [confirm]
%Error deleting flash:/vlan.dat (No such file or directory)

Switch#erase startup-config
Erasing the nvram filesystem will remove all configuration files! Continue? [confirm]
[OK]
Erase of nvram: complete
%SYS-7-NV_BLOCK_INIT: Initialized the geometry of nvram
Switch#
Switch#relaod
Translating "relaod"...domain server (255.255.255.255)
% Unknown command or computer name, or unable to find computer address

Switch#reload
Proceed with reload? [confirm]
C2960 Boot Loader (C2960-HBOOT-M) Version 12.2(25r)FX, RELEASE SOFTWARE (fc4)
Cisco WS-C2960-24TT (RC32300) processor (revision C0) with 21039K bytes of memory.
2960-24TT starting...
Base ethernet MAC Address: 0060.2F3B.641D
```

```
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface f0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 100
Switch(config-if)#exit
Switch(config)#interface f0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 100
Switch(config-if)#exit
Switch(config)#interface f0/3
Switch(config-if)#switchport mode accecss
                                        ^
% Invalid input detected at '^' marker.

Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 100
Switch(config-if)#exit
Switch(config)#
```

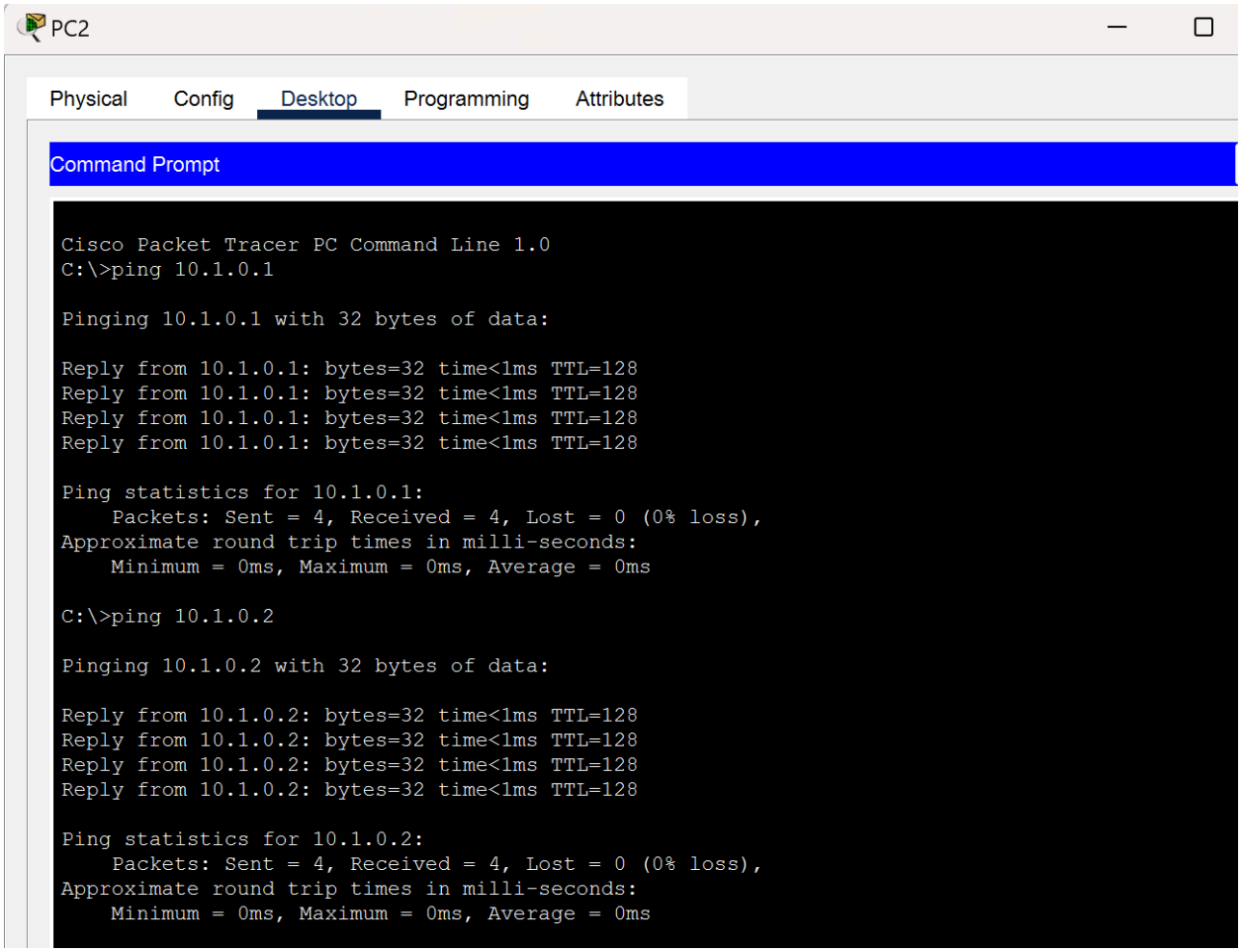
Step 3 :
From PC0 :

```
C:\>ping 10.1.0.2

Pinging 10.1.0.2 with 32 bytes of data:

Reply from 10.1.0.2: bytes=32 time<1ms TTL=128
Reply from 10.1.0.2: bytes=32 time<1ms TTL=128
Reply from 10.1.0.2: bytes=32 time<1ms TTL=128
Reply from 10.1.0.2: bytes=32 time<1ms TTL=128

Ping statistics for 10.1.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.1.0.3

Pinging 10.1.0.3 with 32 bytes of data:

Reply from 10.1.0.3: bytes=32 time<1ms TTL=128
Reply from 10.1.0.3: bytes=32 time<1ms TTL=128
Reply from 10.1.0.3: bytes=32 time<1ms TTL=128
Reply from 10.1.0.3: bytes=32 time<1ms TTL=128

Ping statistics for 10.1.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

From PC1 :


PC1
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.1.0.
Ping request could not find host 10.1.0.. Please check the name and try again.
C:\>ping 10.1.0.1
Pinging 10.1.0.1 with 32 bytes of data:
Reply from 10.1.0.1: bytes=32 time<1ms TTL=128
Reply from 10.1.0.1: bytes=32 time=13ms TTL=128
Reply from 10.1.0.1: bytes=32 time<1ms TTL=128
Reply from 10.1.0.1: bytes=32 time<1ms TTL=128
Ping statistics for 10.1.0.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 13ms, Average = 3ms
C:\>ping 10.1.0.3
Pinging 10.1.0.3 with 32 bytes of data:
Reply from 10.1.0.3: bytes=32 time<1ms TTL=128
Reply from 10.1.0.3: bytes=32 time<1ms TTL=128
Reply from 10.1.0.3: bytes=32 time<1ms TTL=128
Reply from 10.1.0.3: bytes=32 time<1ms TTL=128
Ping statistics for 10.1.0.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms

From Pc 2 :



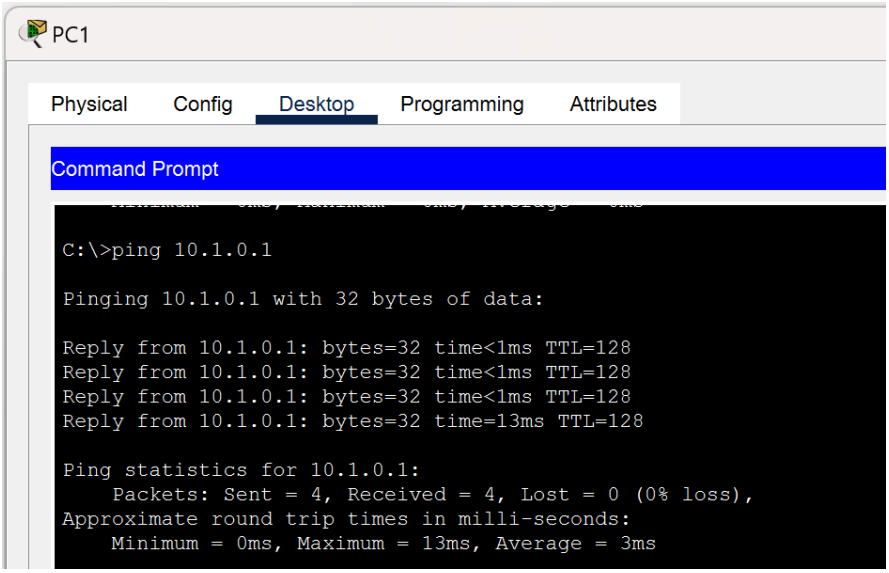
Step 4 :

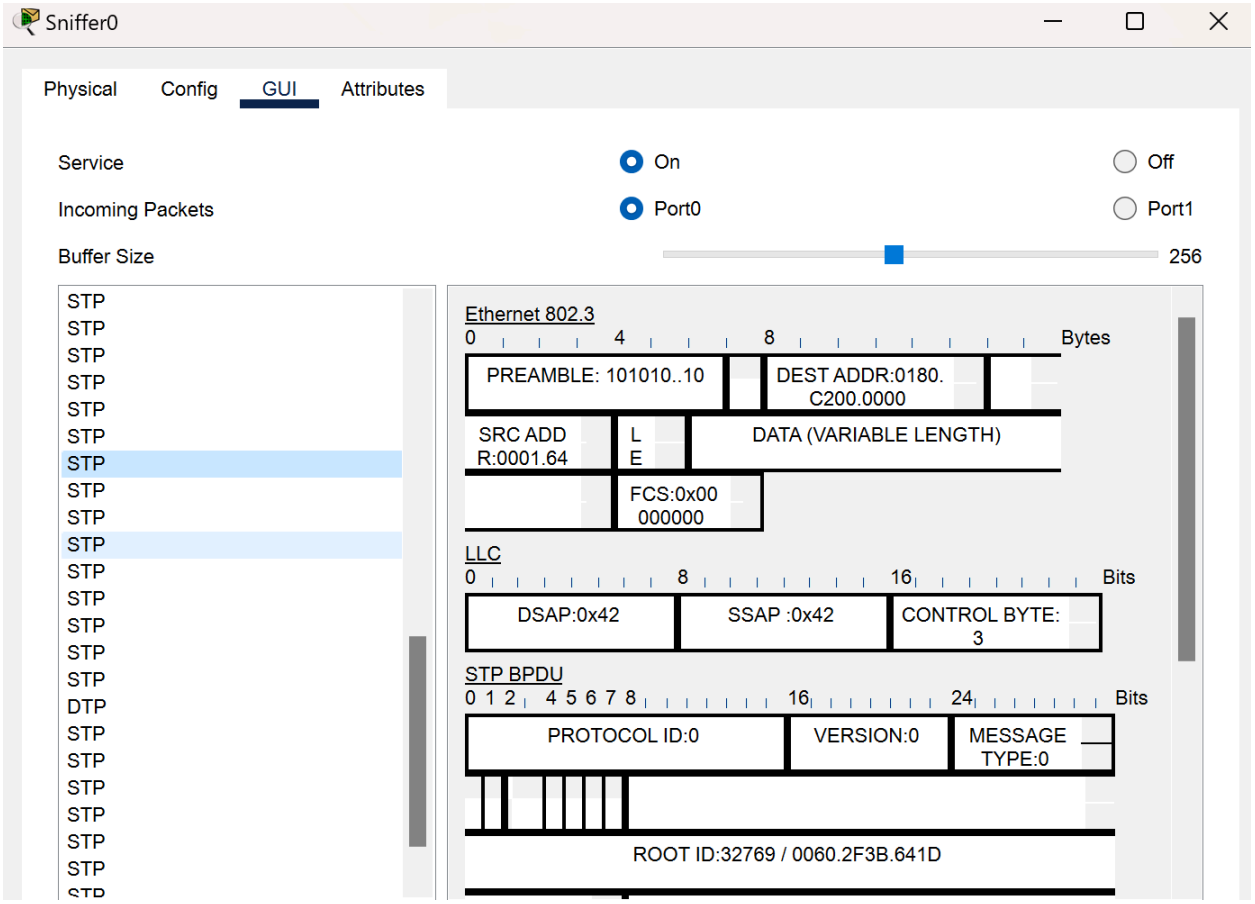
```
Switch(config)#monitor session 1 source interface f0/1 both
```

Step 5 :

```
Switch(config)#monitor session 1 destination interface f0/3
```

Step 6 :


PC1
Physical
Config
Desktop
Programming
Attributes
Command Prompt
C:\>ping 10.1.0.1
Pinging 10.1.0.1 with 32 bytes of data:
Reply from 10.1.0.1: bytes=32 time<1ms TTL=128
Reply from 10.1.0.1: bytes=32 time<1ms TTL=128
Reply from 10.1.0.1: bytes=32 time<1ms TTL=128
Reply from 10.1.0.1: bytes=32 time=13ms TTL=128
Ping statistics for 10.1.0.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 13ms, Average = 3ms


Sniffer0
Physical
Config
GUI
Attributes
Service
On
Off
Incoming Packets
Port0
Port1
Buffer Size
256
STP
STP
STP
STP
STP
STP
STP
STP
STP
STP
STP
STP
STP
STP
STP
DTP
STP
STP
STP
STP
STP
STP
Ethernet 802.3
0
4
8
Bytes
PREAMBLE: 101010..10
DEST ADDR:0180.C200.0000
SRC ADDR:0001.64
L E
DATA (VARIABLE LENGTH)
FCS:0x00000000
LLC
0
8
16
Bits
DSAP:0x42
SSAP :0x42
CONTROL BYTE: 3
STP BPDU
0 1 2 4 5 6 7 8
16
24
Bits
PROTOCOL ID:0
VERSION:0
MESSAGE TYPE:0
ROOT ID:32769 / 0060.2F3B.641D

Step 7 :

```
Switch>enable
Switch#show monitor session 1
Session 1
---------
Type                   : Local Session
Description            : -
Source Ports           :
    Both               : Fa0/1
Destination Ports      : Fa0/3
    Encapsulation      : Native
          Ingress      : Disabled
```

Lab Analysis :

1. SPAN is a switch port analyzer used to monitor the ports of the switch, Also, the span features allow the unicast frames sent to port in addition to the destination port.
2. VLAN separates the scope and domains inside the single switch, and they can't communicate with each other until frame tagging happens by using router or a multilayer switch acts as a router.
3. By default, multilayer switches are layer 2, but if you enable IP routing, they will become layer 3.
4. Switched Virtual Interface is a layer 3 interface created by switches to assign IP addresses to each VLAN to communicate with each other.
5. The purpose of VLANs is to logically segment a network into separate broadcast domains. This provides segmentation, security, and flexibility by group devices even if they are not physically located together.

Key Term Quiz :

1) VLAN
2) Access
3) Trunk
4) SPAN
5) Multilayer Switch