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Course: Network Security

Course Prefix: CSEC 744

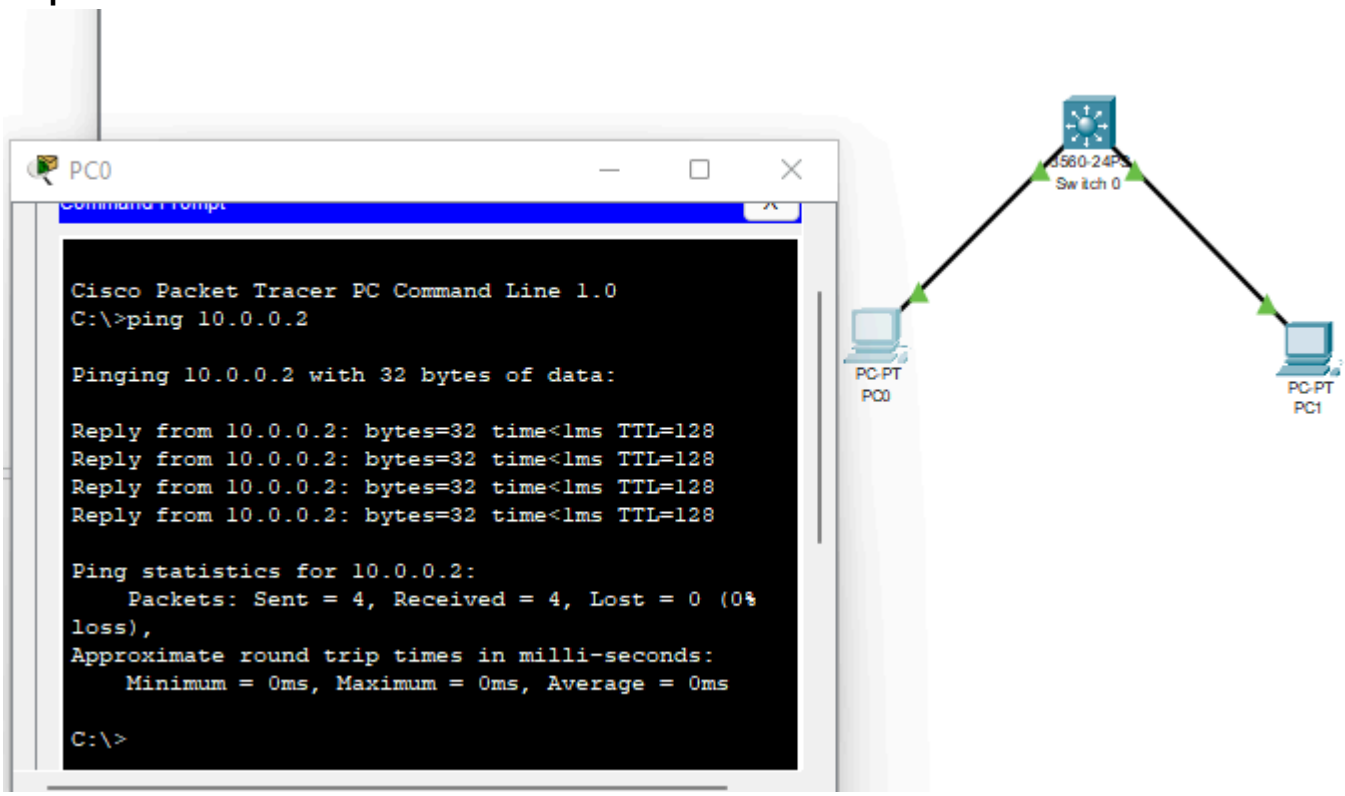
Section: 01

Chapter 11: Switch Features

Date: 02/17/2024

Lab Exercise 11.01: VLANs and SVIs

Step 3:



Step 4:

Switch 0

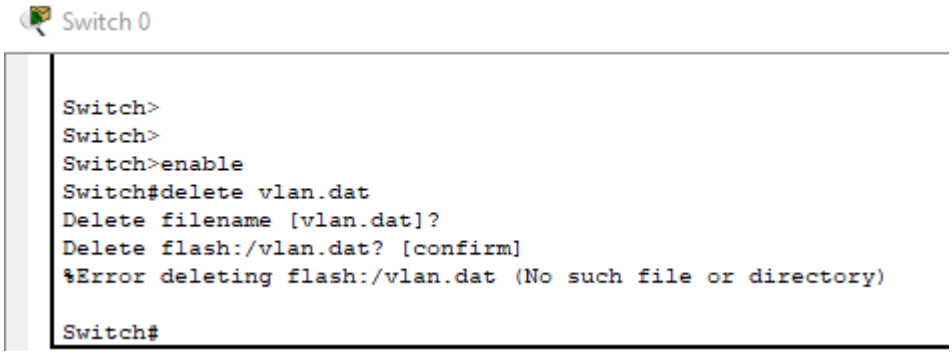
```
         --- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]:
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up


Press RETURN to get started!



Switch>
```

Step 5a:

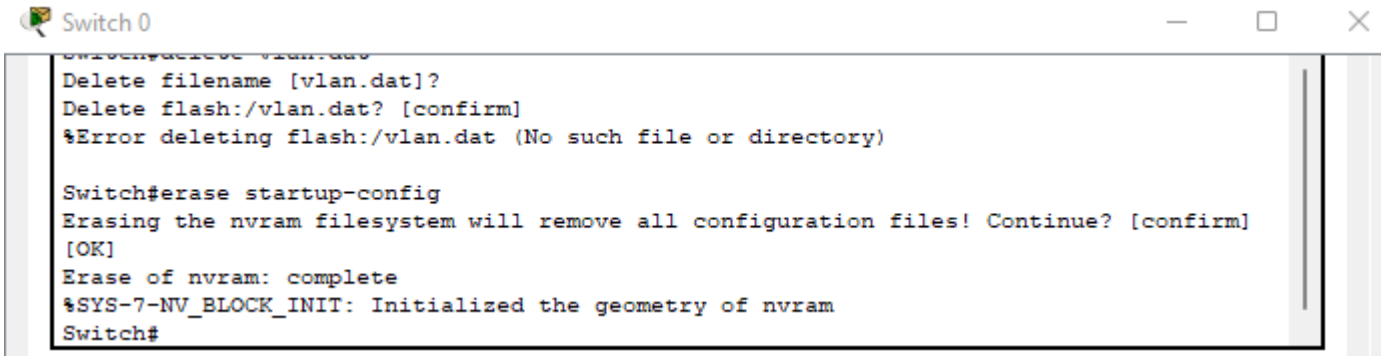
Switch 0

```
Switch>
Switch>
Switch>enable
Switch#
```

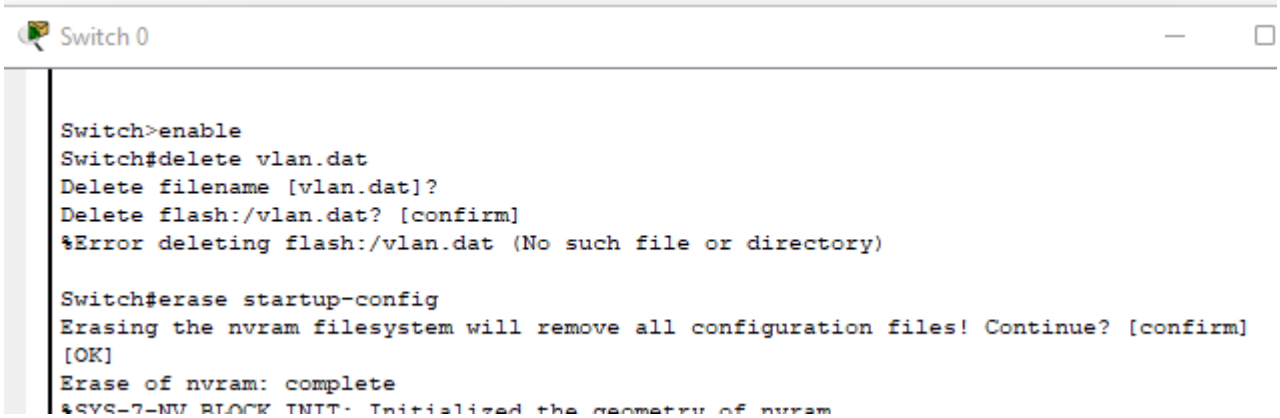
Step 5b:



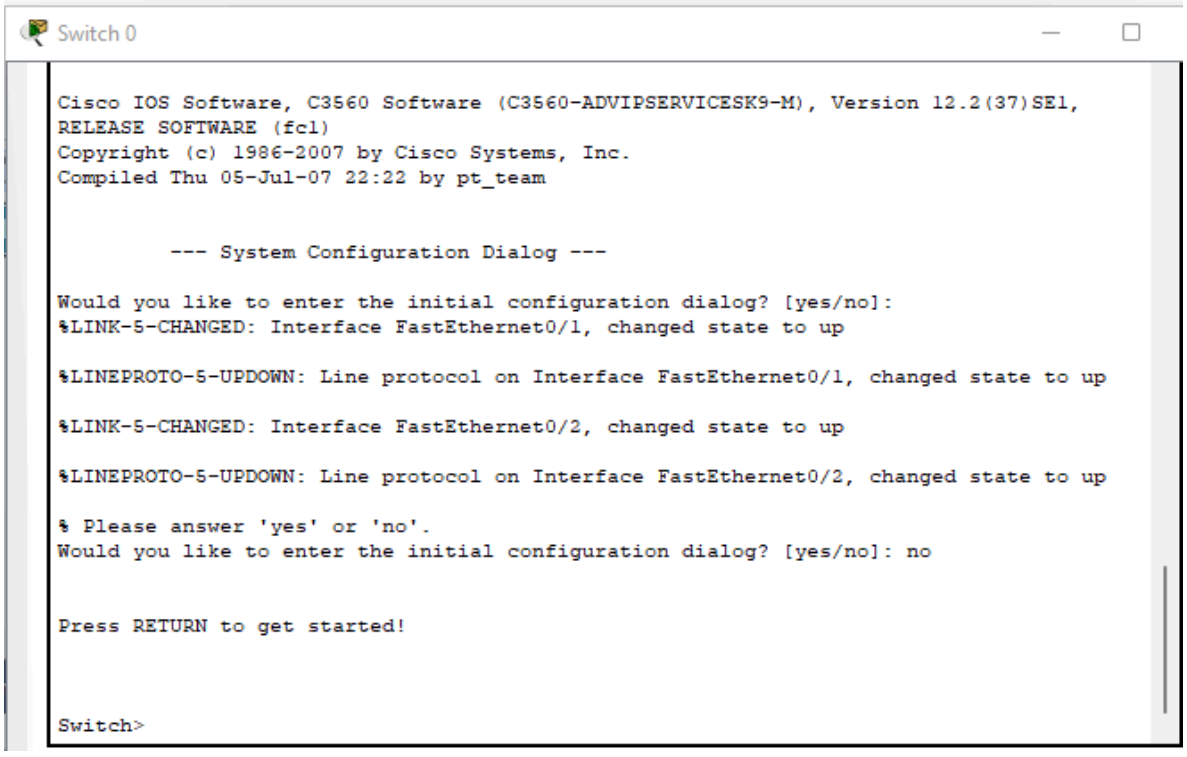
Step 5c:



Step 5d:



This is after reload



Step 5e:

Switch 0

```
Switch>show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
FastEthernet0/1        unassigned      YES NVRAM  up                    up
FastEthernet0/2        unassigned      YES NVRAM  up                    up
FastEthernet0/3        unassigned      YES NVRAM  down                  down
FastEthernet0/4        unassigned      YES NVRAM  down                  down
```

Switch 0

```
FastEthernet0/20       unassigned      YES NVRAM  down                  down
FastEthernet0/21       unassigned      YES NVRAM  down                  down
FastEthernet0/22       unassigned      YES NVRAM  down                  down
FastEthernet0/23       unassigned      YES NVRAM  down                  down
FastEthernet0/24       unassigned      YES NVRAM  down                  down
GigabitEthernet0/1     unassigned      YES NVRAM  down                  down
GigabitEthernet0/2     unassigned      YES NVRAM  down                  down
Vlan1                  unassigned      YES NVRAM  administratively down down
Switch>
```

Step 6:

Switch 0

```
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

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------

Remote SPAN VLANs
------------------------------------------------------------------------------

Primary Secondary Type              Ports
------- --------- ----------------- ------------------------------------------
Switch>
```

Step 7a:

Switch 0

```
Remove VLAN VLANs
----------------------------------------------------------------------------

Primary Secondary Type              Ports
------- --------- ----------------- ------------------------------------------
Switch>enable
Switch#
```

Step 7b:

Switch 0

```
Primary Secondary Type              Ports
------- --------- ----------------- ------------------------------------------
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#
```

Step 7c:

Switch 0

```
Primary Secondary Type              Ports
------- --------- ----------------- ------------------------------------------
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 101
Switch(config-vlan)#
```

Step 7d:

Switch 0

```
------- --------- ----------------- ------------------------------
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)#
```

Step 7e:

Switch 0

```
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)#
```

Step 7f:

Switch 0

```
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)#
```

Step 7g:

Switch 0

```
Switch(config-vlan)#vlan 102
Switch(config-vlan)#name Marketing
Switch(config-vlan)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#
```

Step 8:

Switch 0

```
%SYS-5-CONFIG_I: Configured from console by console

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
101  Finance                           active
102  Marketing                         active
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
```

Step 9:

Switch 0

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

Step 10:

Switch 0

```
Switch(config-if)#exit
Switch(config)#int f0/2
Switch(config-if)#swtichport mode access
                  ^
% Invalid input detected at '^' marker.

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

Switch#
```

Step 11:

Switch 0

```
Switch#show vlan

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
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
```

Step 12:

PC0

```
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),

C:\>
```

Step 13:

Switch 0

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int 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 shut
Switch(config-if)#int 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 shut
Switch(config-if)#exit
Switch(config)#ip routing
Switch(config)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#
```

Step 14:

Switch 0

```
Switch>enable
Switch#show ip int brief
Interface              IP-Address      OK? Method Status                Protocol
FastEthernet0/1        unassigned      YES NVRAM  up                    up
FastEthernet0/2        unassigned      YES NVRAM  up                    up
FastEthernet0/3        unassigned      YES NVRAM  down                  down
FastEthernet0/4        unassigned      YES NVRAM  down                  down
FastEthernet0/5        unassigned      YES NVRAM  down                  down
FastEthernet0/6        unassigned      YES NVRAM  down                  down
FastEthernet0/7        unassigned      YES NVRAM  down                  down
FastEthernet0/8        unassigned      YES NVRAM  down                  down
FastEthernet0/9        unassigned      YES NVRAM  down                  down
FastEthernet0/10       unassigned      YES NVRAM  down                  down
FastEthernet0/11       unassigned      YES NVRAM  down                  down
FastEthernet0/12       unassigned      YES NVRAM  down                  down
FastEthernet0/13       unassigned      YES NVRAM  down                  down
FastEthernet0/14       unassigned      YES NVRAM  down                  down
FastEthernet0/15       unassigned      YES NVRAM  down                  down
FastEthernet0/16       unassigned      YES NVRAM  down                  down
FastEthernet0/17       unassigned      YES NVRAM  down                  down
FastEthernet0/18       unassigned      YES NVRAM  down                  down
FastEthernet0/19       unassigned      YES NVRAM  down                  down
FastEthernet0/20       unassigned      YES NVRAM  down                  down
FastEthernet0/21       unassigned      YES NVRAM  down                  down
FastEthernet0/22       unassigned      YES NVRAM  down                  down
FastEthernet0/23       unassigned      YES NVRAM  down                  down
FastEthernet0/24       unassigned      YES NVRAM  down                  down
GigabitEthernet0/1     unassigned      YES NVRAM  down                  down
GigabitEthernet0/2     unassigned      YES NVRAM  down                  down
Vlan1                  unassigned      YES NVRAM  administratively down down
Vlan101                10.101.0.1      YES manual up                    up
Vlan102                10.102.0.1      YES manual up                    up
Switch#
```

Step 15:

PC0

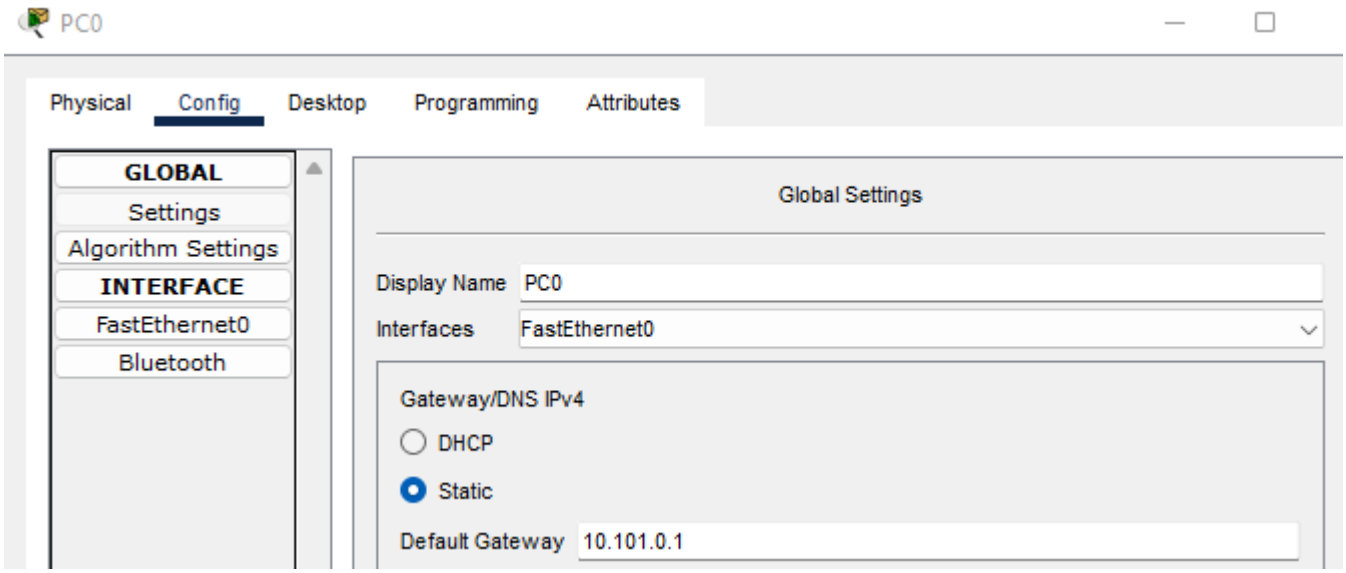
Physical | Config | Desktop | Programming | Attributes

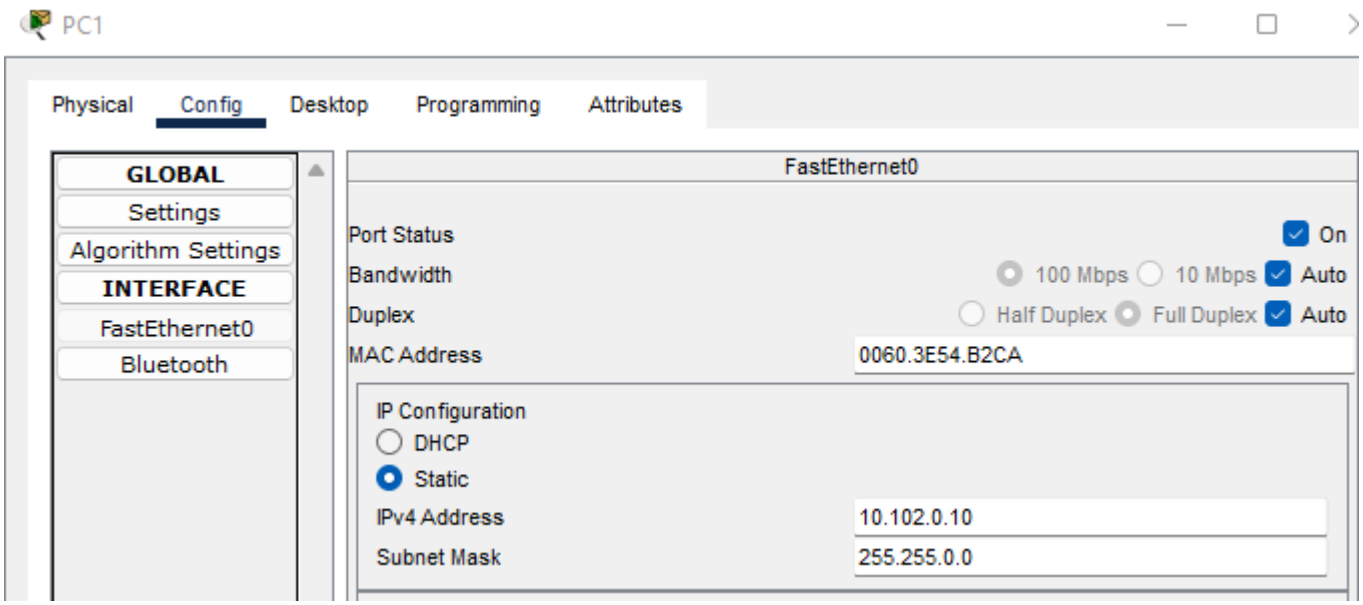
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth

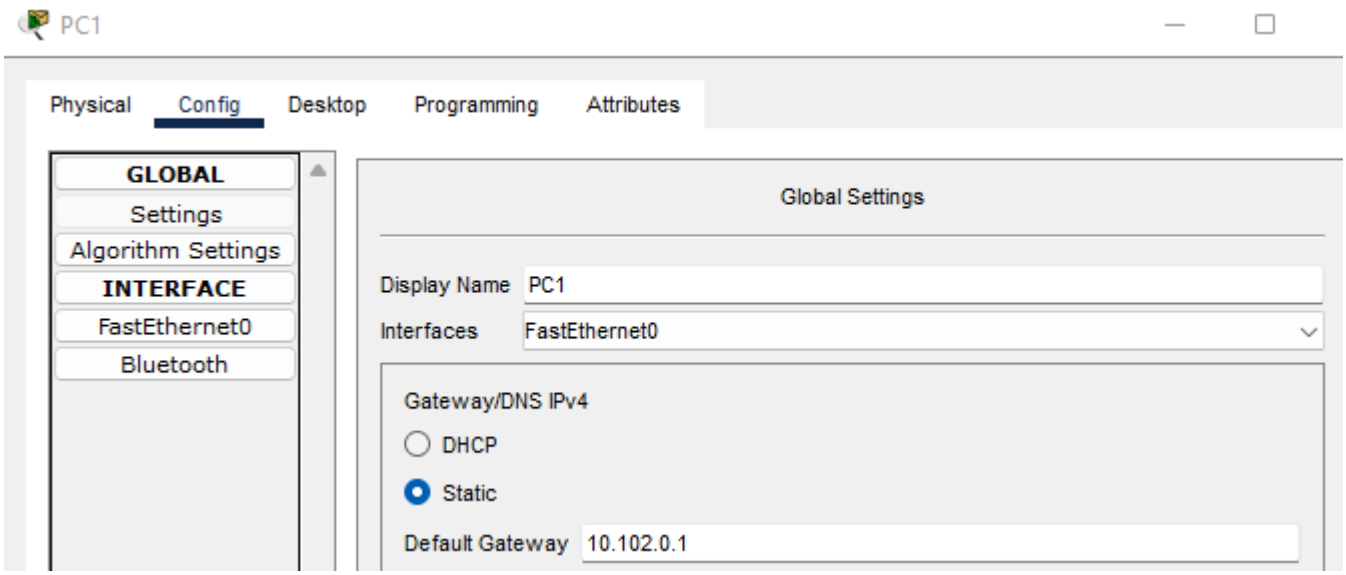
FastEthernet0

Port Status: On
Bandwidth: 100 Mbps / 10 Mbps / Auto
Duplex: Half Duplex / Full Duplex / Auto
MAC Address: 000A.F372.07B9

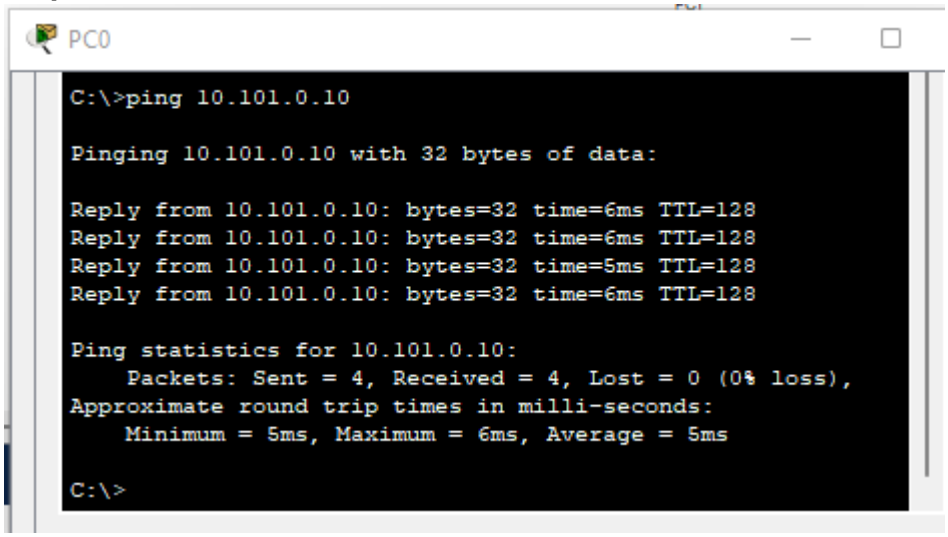
IP Configuration
DHCP
Static
IPv4 Address: 10.101.0.10
Subnet Mask: 255.255.0.0

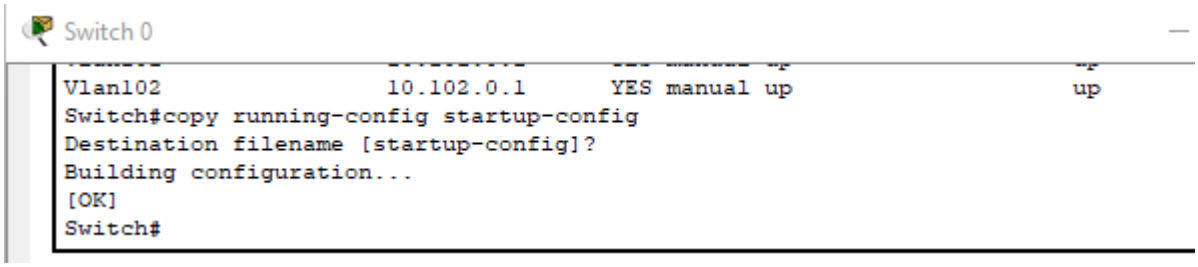

PC0
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
Global Settings
Display Name
PC0
Interfaces
FastEthernet0
Gateway/DNS IPv4
DHCP
Static
Default Gateway
10.101.0.1


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
0060.3E54.B2CA
IP Configuration
DHCP
Static
IPv4 Address
10.102.0.10
Subnet Mask
255.255.0.0


PC1
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
Global Settings
Display Name
PC1
Interfaces
FastEthernet0
Gateway/DNS IPv4
DHCP
Static
Default Gateway
10.102.0.1

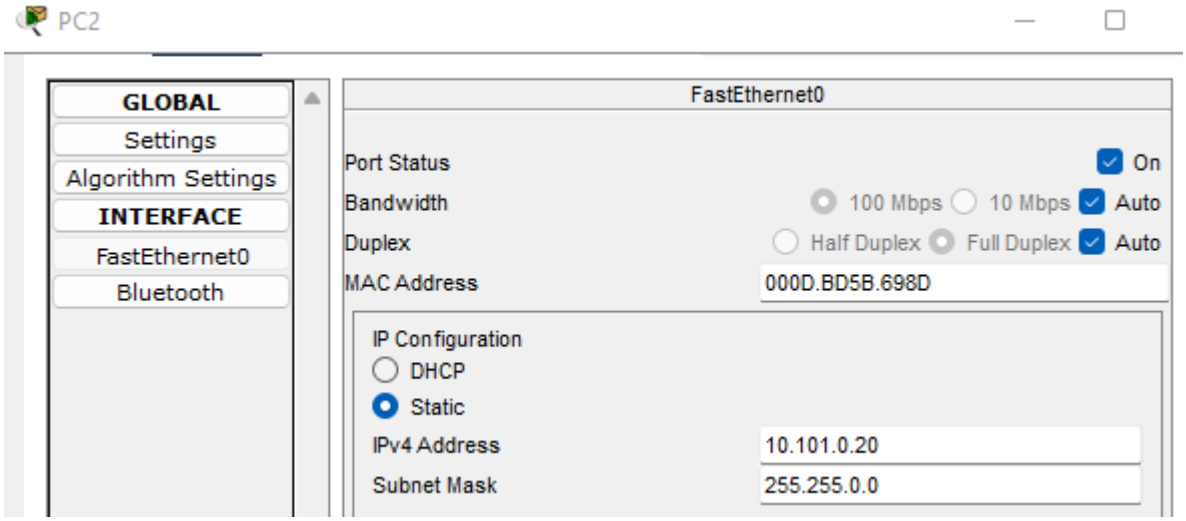
Step 16:

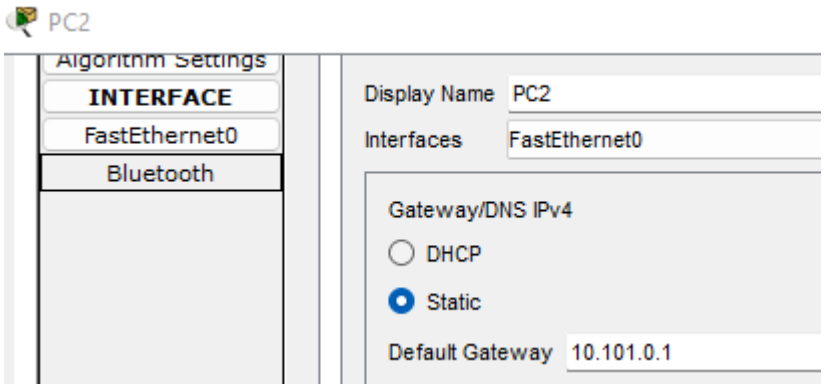

PC0
C:\>ping 10.101.0.10
Pinging 10.101.0.10 with 32 bytes of data:
Reply from 10.101.0.10: bytes=32 time=6ms TTL=128
Reply from 10.101.0.10: bytes=32 time=6ms TTL=128
Reply from 10.101.0.10: bytes=32 time=5ms TTL=128
Reply from 10.101.0.10: bytes=32 time=6ms TTL=128
Ping statistics for 10.101.0.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 5ms, Maximum = 6ms, Average = 5ms
C:\>

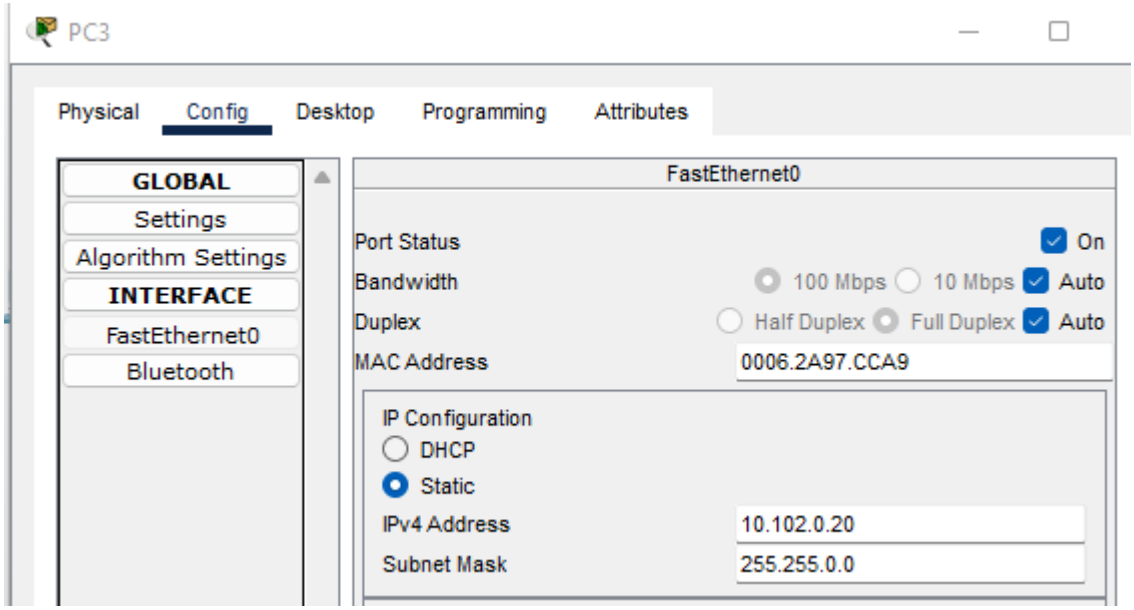

Switch 0
Vlan102 10.102.0.1 YES manual up up
Switch#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Switch#

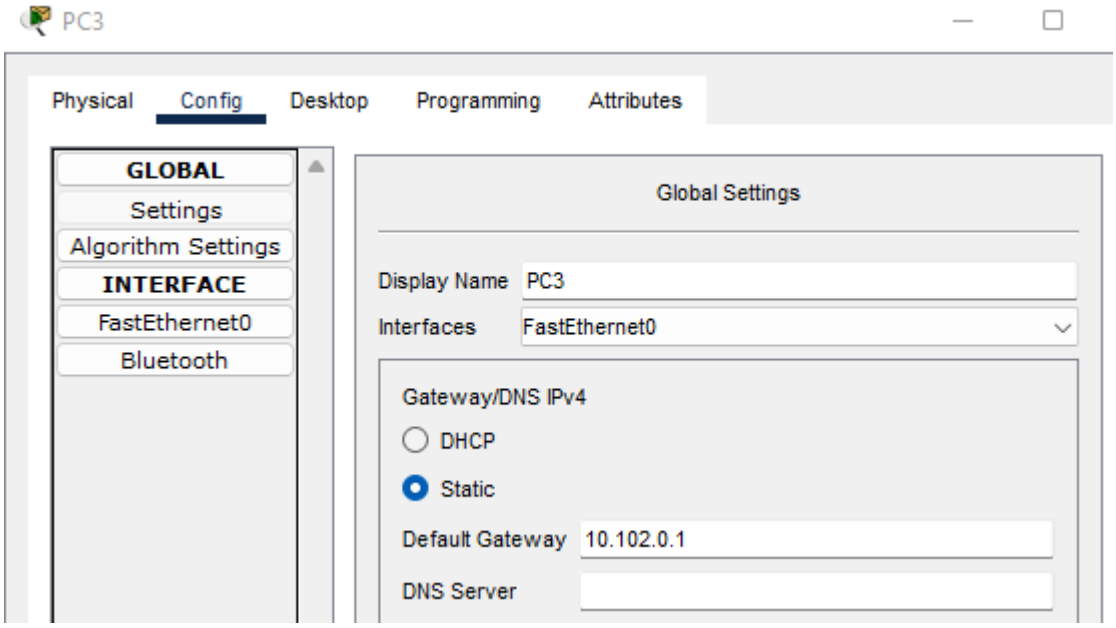
Lab Exercise 11.02: Trunking

Step 3:


PC2
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
000D.BD5B.698D
IP Configuration
DHCP
Static
IPv4 Address
10.101.0.20
Subnet Mask
255.255.0.0


PC2
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
Display Name
PC2
Interfaces
FastEthernet0
Gateway/DNS IPv4
DHCP
Static
Default Gateway
10.101.0.1


PC3
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
0006.2A97.CCA9
IP Configuration
DHCP
Static
IPv4 Address
10.102.0.20
Subnet Mask
255.255.0.0



Step 4:

Switch 1

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int f0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport acess vlan 101
                             ^
% Invalid input detected at '^' marker.

Switch(config-if)#switchport access vlan 101
% Access VLAN does not exist. Creating vlan 101
Switch(config-if)#switchport access vlan 101
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int f0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 102
% Access VLAN does not exist. Creating vlan 102
Switch(config-if)#switchport access vlan 102
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#
```

Step 5:

Switch 1

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

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up

Switch(config-if)#
```

Switch 0

```
Switch>enabl
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int f0/3
Switch(config-if)#switchport trunk encapsulation dotlq
                                                    ^
% Invalid input detected at '^' marker.

Switch(config-if)#switchport trunk encapsulation dotlq
Switch(config-if)#switchport mode trunk
Switch(config-if)#switchport mode trunk
Switch(config-if)#no shut
Switch(config-if)#
```

Step 6:

Host A

Physical | Config | Desktop | Programming | Attributes

Command Prompt

```
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 = 0ms, 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=3ms TTL=127

Ping statistics for 10.102.0.20:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
```

Host B

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
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 10.101.0.20

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 = 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
```

Host C

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=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=3ms 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 = 3ms, 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=3ms 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 = 3ms, 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

```
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=5ms 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 = 5ms, 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 = 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
```

Lab Exercise 11.03: Routed Ports

Step 2:

Switch 0

```
Switch>enable
Switch#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Switch#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int f0/4
Switch(config-if)#no switchport
Switch(config-if)#no shut
Switch(config-if)#no switchport
Switch(config-if)#
```

Step 3:

Switch 0

```
% Invalid input detected at '^' marker.

Switch(config-if)#ip address 10.103.0.1 255.255.0.0
Switch(config-if)#no shut
Switch(config-if)#
```

Step 4:

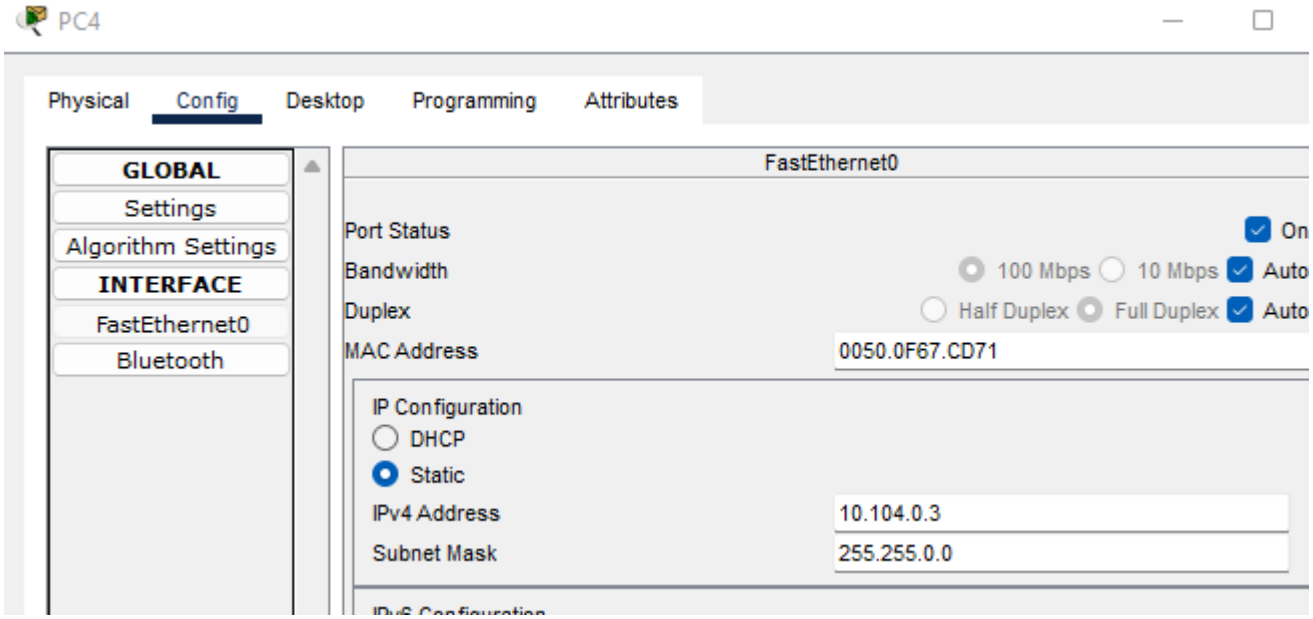
Router0

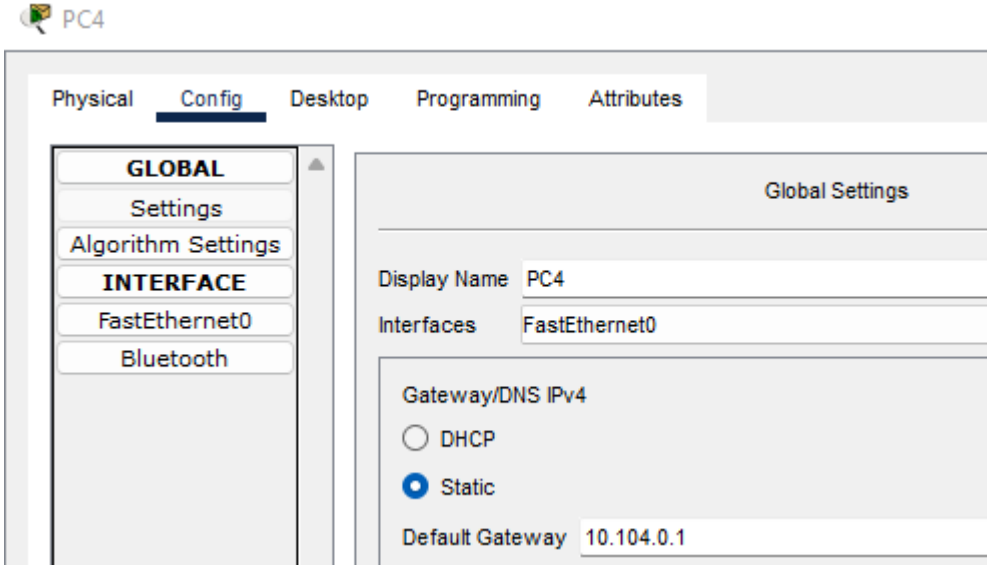
Physical | Config | CLI | Attributes

IOS Command Line Interface

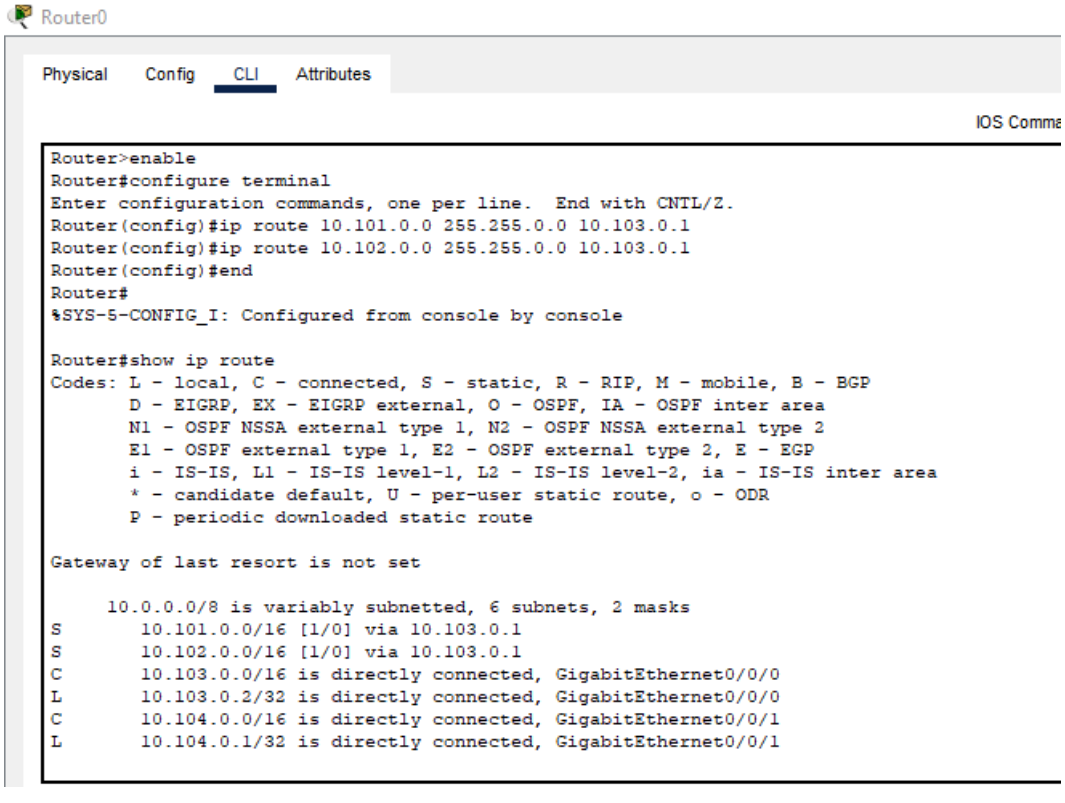
```
         --- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: no


Press RETURN to get started!



Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int g0/0/0
Router(config-if)#ip address 10.103.0.2 255.255.0.0
Router(config-if)#no shut

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

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

Router(config-if)#int g0/0/1
Router(config-if)#ip address 10.104.0.1 255.255.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/1, changed state to up

Router(config-if)#
```

Step 6:


PC4
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
0050.0F67.CD71
IP Configuration
DHCP
Static
IPv4 Address
10.104.0.3
Subnet Mask
255.255.0.0


PC4
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
Global Settings
Display Name
PC4
Interfaces
FastEthernet0
Gateway/DNS IPv4
DHCP
Static
Default Gateway
10.104.0.1

Step 7:


Router0
Physical
Config
CLI
Attributes
IOS Comma
Router>enable
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, GigabitEthernet0/0/0
L 10.103.0.2/32 is directly connected, GigabitEthernet0/0/0
C 10.104.0.0/16 is directly connected, GigabitEthernet0/0/1
L 10.104.0.1/32 is directly connected, GigabitEthernet0/0/1

Step 8:

Switch 0

```
Switch>enable
Switch#cofingure terminal
                ^
% Invalid input detected at '^' marker.

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

Switch#
```

Step 9:
From Host A

Host A

Physical | Config | Desktop | Programming | Attributes

Command Prompt

```
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 10.101.0.20

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 = 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:
```

Host A

```
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.104.0.3

Pinging 10.104.0.3 with 32 bytes of data:

Request timed out.
Request timed out.
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 = 2, Lost = 2 (50% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

From Host B:

Host B

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=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 10.101.0.20

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=4ms 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 = 4ms, Average = 1ms

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=5ms 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:
```

Host B

```
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 5ms, Average = 1ms

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:\>
```

From Host C:

Host C

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=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 = 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=6ms TTL=128
Reply from 10.101.0.20: bytes=32 time=4ms TTL=128
Reply from 10.101.0.20: bytes=32 time=3ms TTL=128
Reply from 10.101.0.20: bytes=32 time=4ms TTL=128

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

Host C

```
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 = 1ms, Average = 0ms

C:\>
```

From Host D:

Host D

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=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 10.102.0.10

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 10.101.0.20

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:
```

Host D

```
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

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:\>
```

From Host E:

PC4

Physical | Config | Desktop | Programming | Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
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 = 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=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 = 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=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
```

PC4

```
    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<1ms TTL=126
Reply from 10.102.0.20: bytes=32 time<1ms TTL=126
Reply from 10.102.0.20: bytes=32 time<1ms TTL=126

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 = 1ms, Average = 0ms

C:\>
```

Step 10:
From Host A:

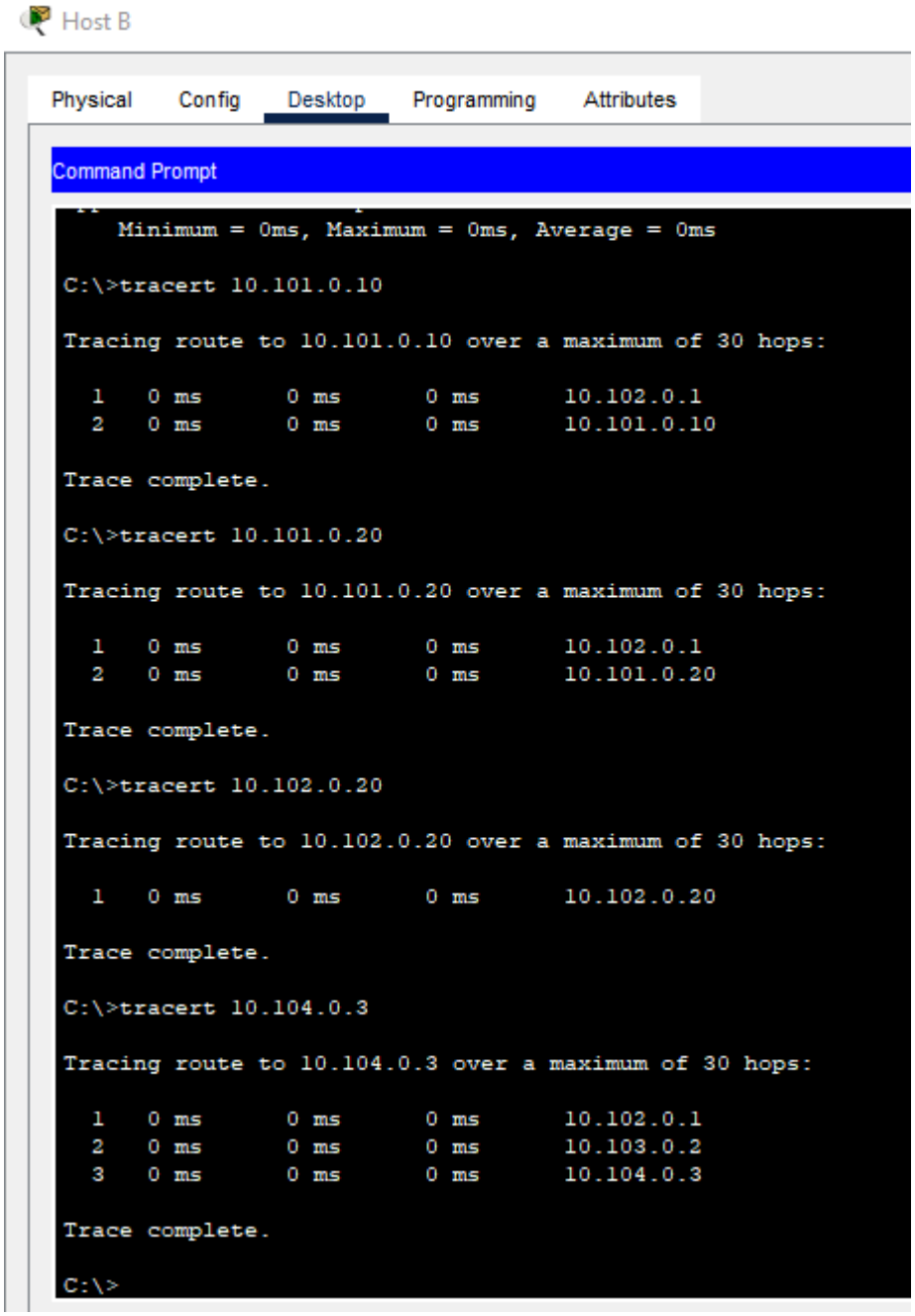
Host A

Physical | Config | Desktop | Programming | Attributes

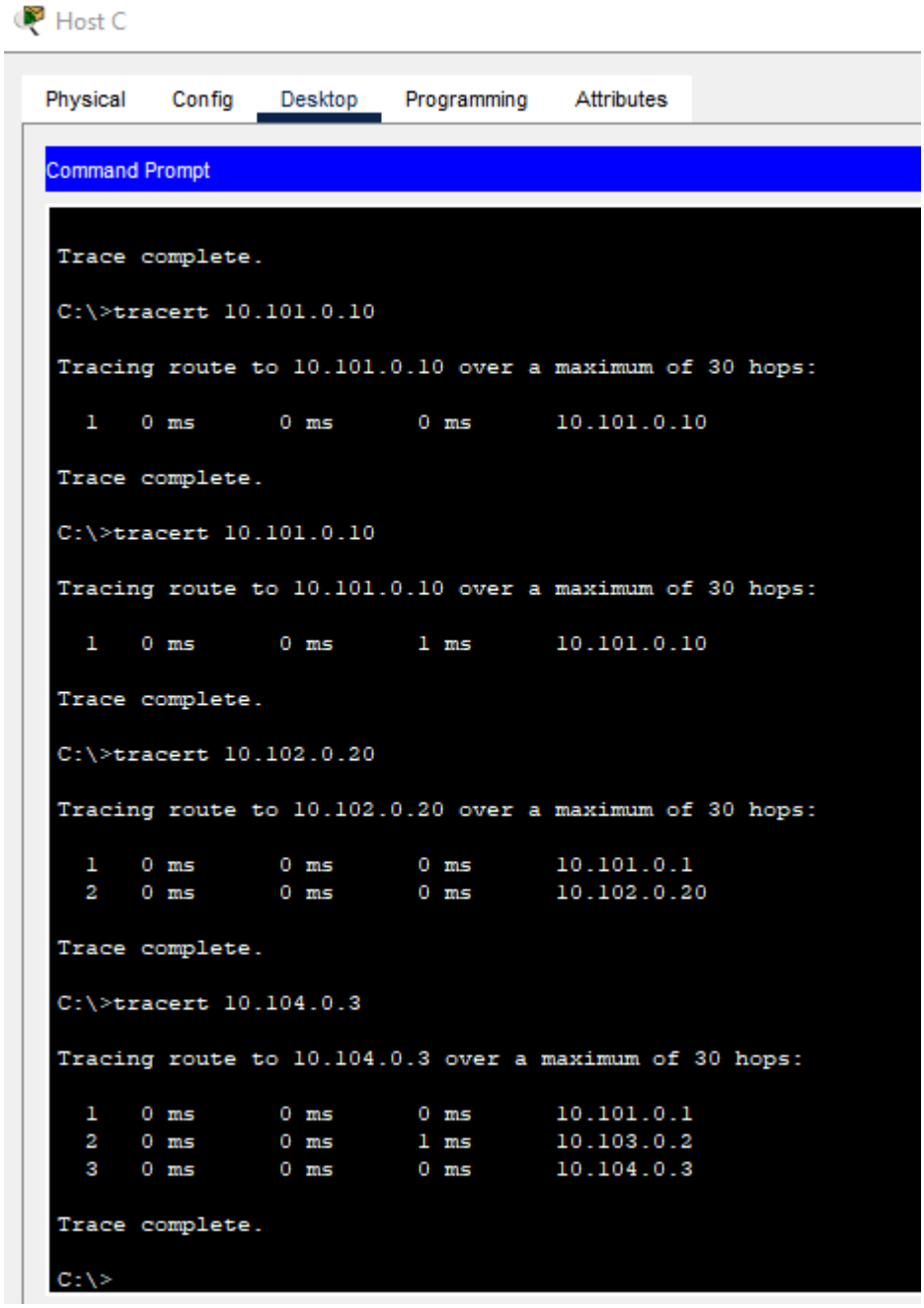
Command Prompt

```
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

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      3 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.

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:\>
```

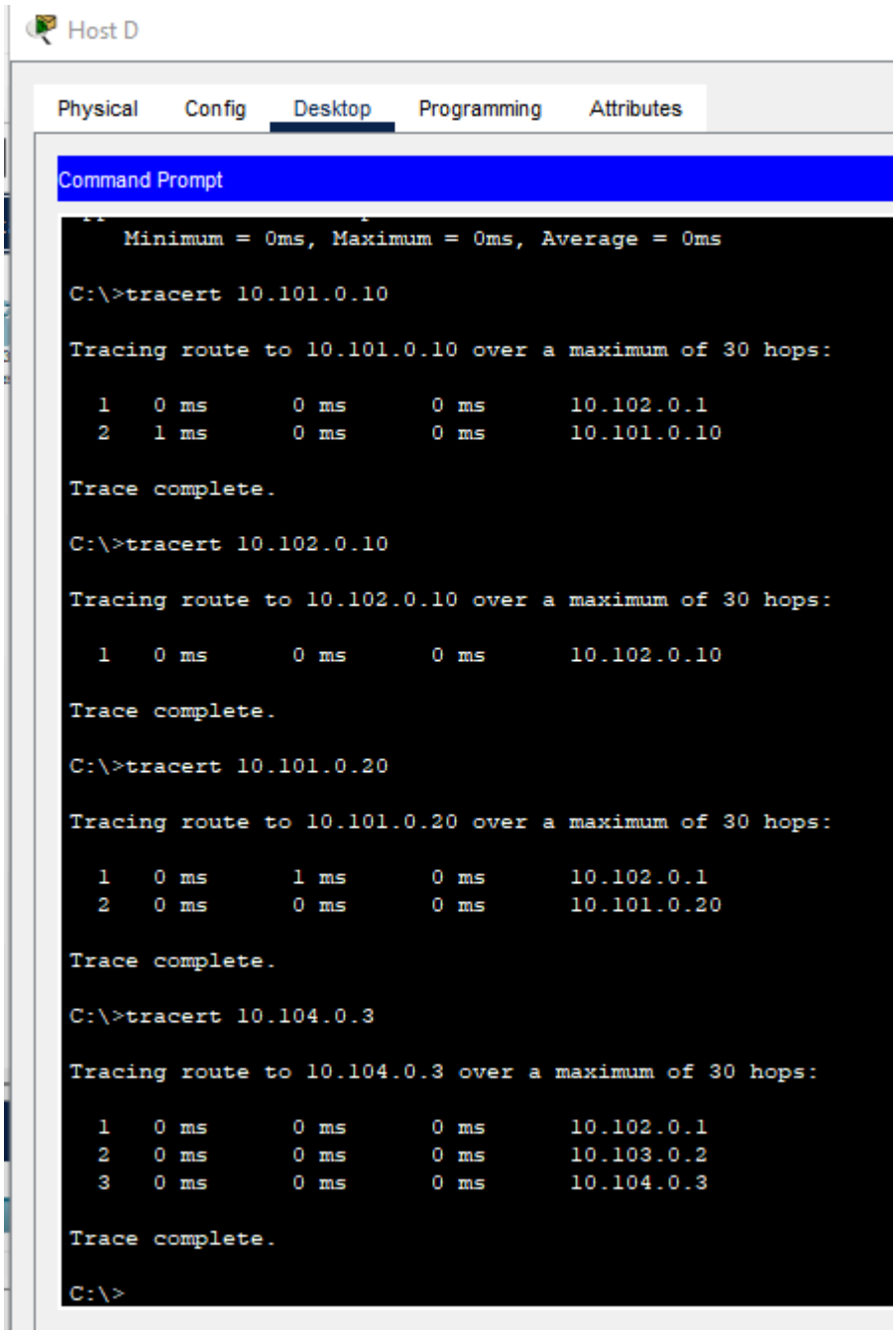
From Host B:


Host B
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Minimum = 0ms, Maximum = 0ms, Average = 0ms
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.
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:\>

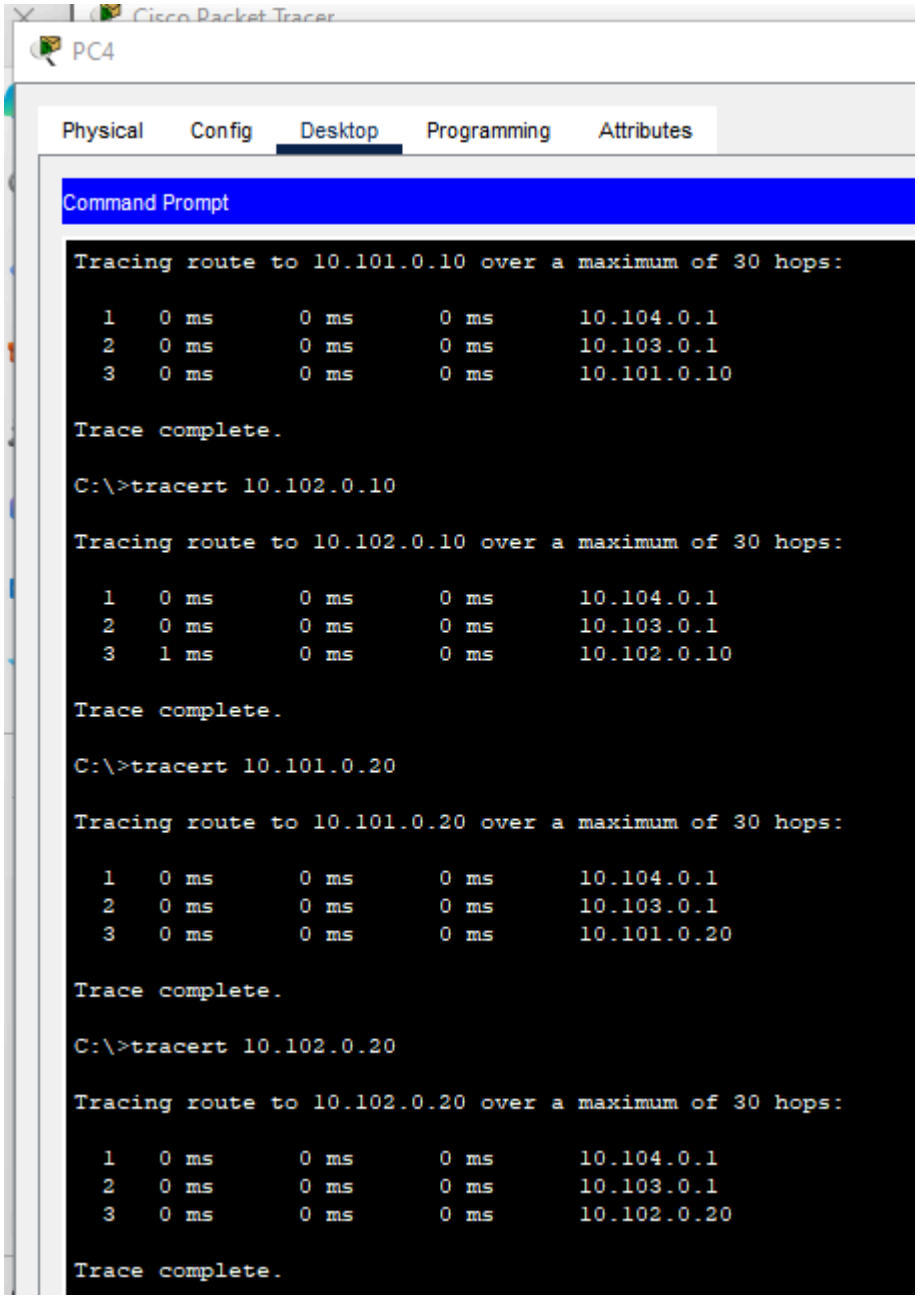
From Host C:


Host C
Physical
Config
Desktop
Programming
Attributes
Command Prompt
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 10.101.0.10
Tracing route to 10.101.0.10 over a maximum of 30 hops:
1 0 ms 0 ms 1 ms 10.101.0.10
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.
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 1 ms 10.103.0.2
3 0 ms 0 ms 0 ms 10.104.0.3
Trace complete.
C:\>

From Host D:

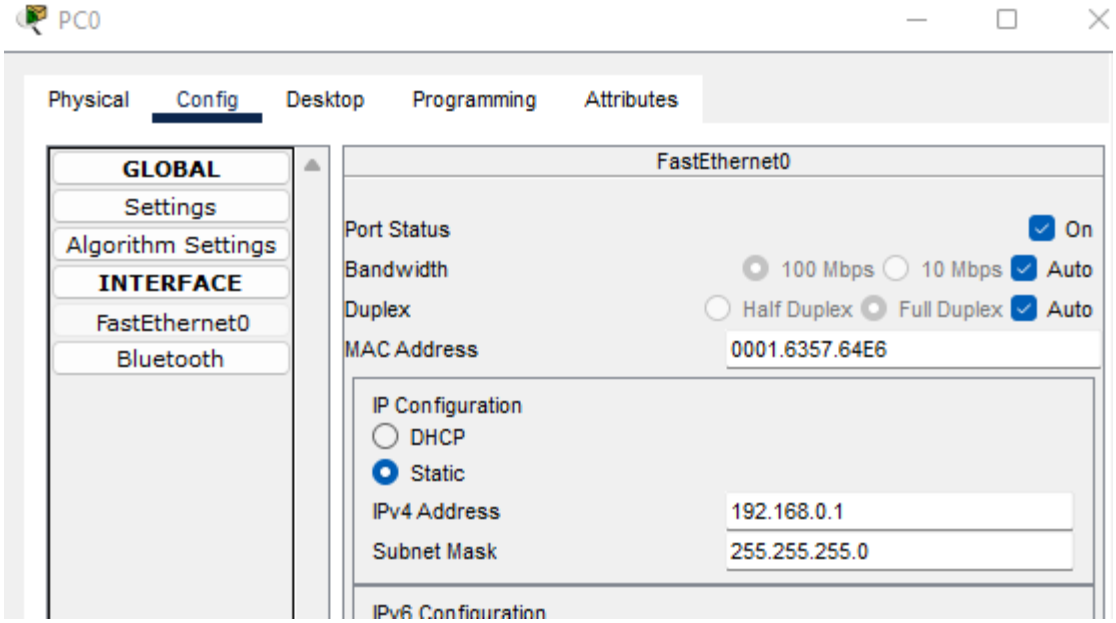

Host D
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>tracert 10.101.0.10
Tracing route to 10.101.0.10 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.102.0.1
2 1 ms 0 ms 0 ms 10.101.0.10
Trace complete.
C:\>tracert 10.102.0.10
Tracing route 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 1 ms 0 ms 10.102.0.1
2 0 ms 0 ms 0 ms 10.101.0.20
Trace complete.
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:\>

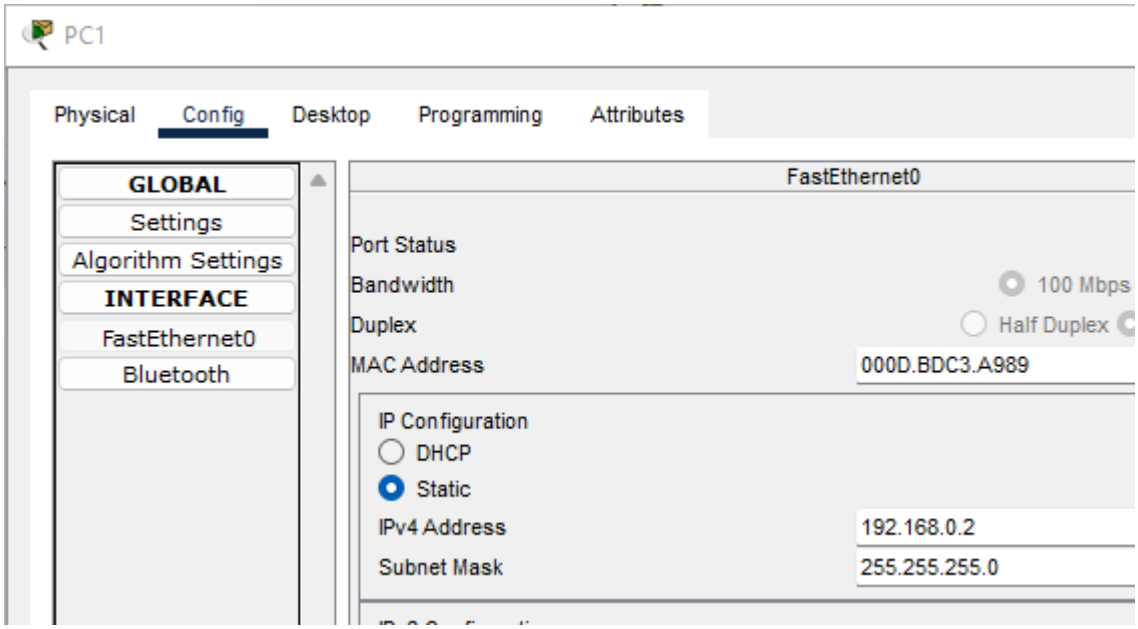
From Host E:

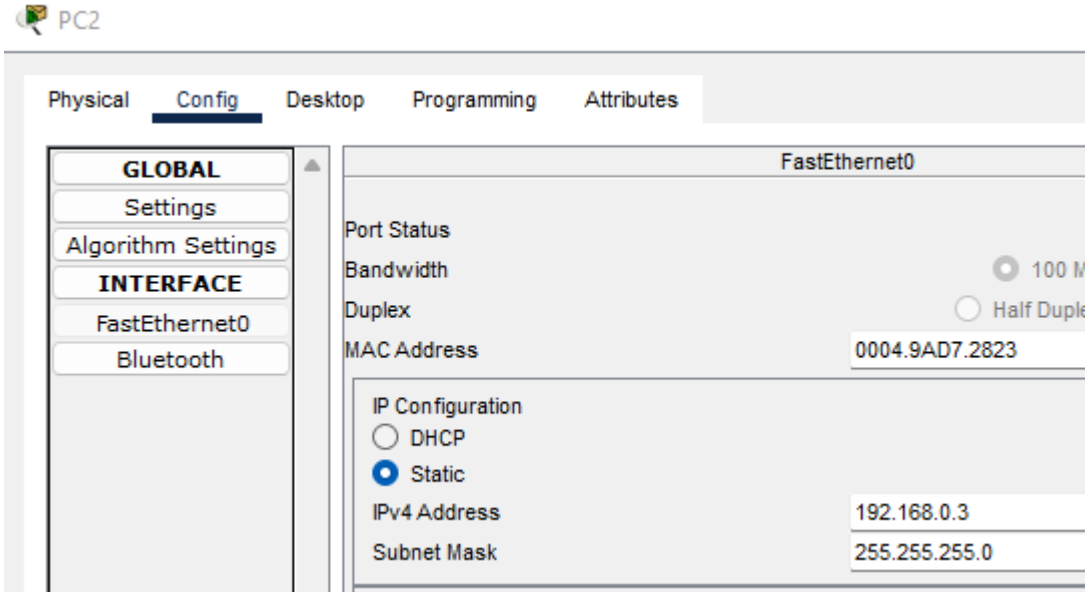

Cisco Packet Tracer
PC4
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Tracing route to 10.101.0.10 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.104.0.1
2 0 ms 0 ms 0 ms 10.103.0.1
3 0 ms 0 ms 0 ms 10.101.0.10
Trace complete.
C:\>tracert 10.102.0.10
Tracing route to 10.102.0.10 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 10.104.0.1
2 0 ms 0 ms 0 ms 10.103.0.1
3 1 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 10.104.0.1
2 0 ms 0 ms 0 ms 10.103.0.1
3 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 10.104.0.1
2 0 ms 0 ms 0 ms 10.103.0.1
3 0 ms 0 ms 0 ms 10.102.0.20
Trace complete.

Lab Exercise 11.04: SPAN

Step 2:

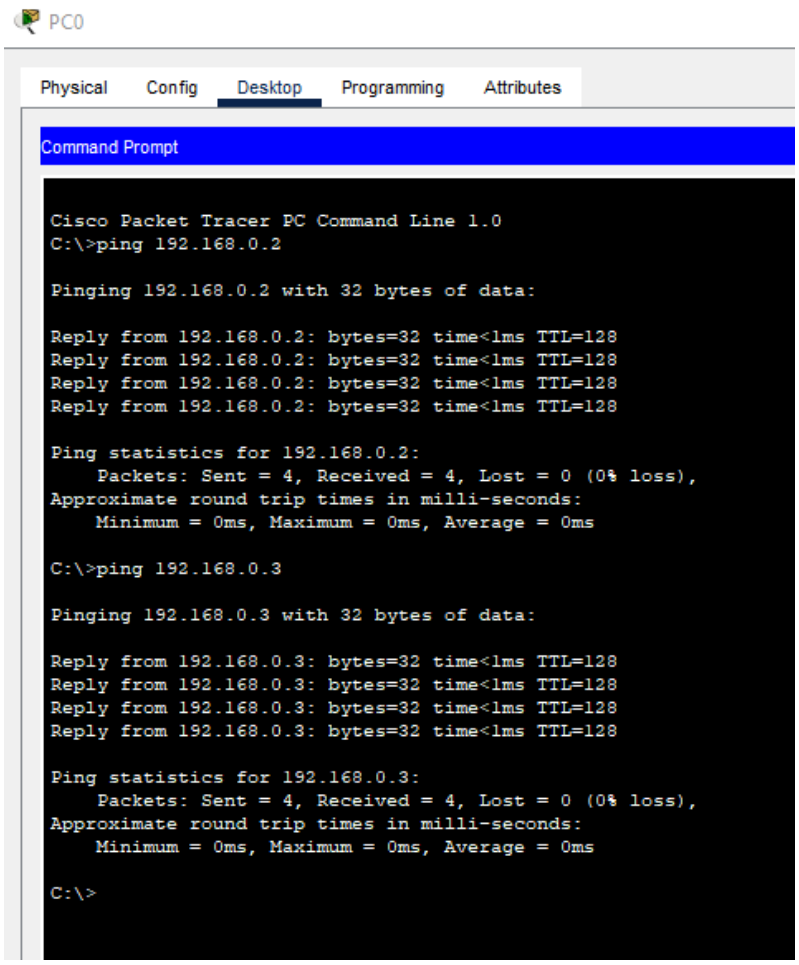

PC0
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
FastEthernet0
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
0001.6357.64E6
IP Configuration
DHCP
Static
IPv4 Address
192.168.0.1
Subnet Mask
255.255.255.0
IPv6 Configuration


PC1
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
FastEthernet0
Port Status
Bandwidth
100 Mbps
Duplex
Half Duplex
MAC Address
000D.BDC3.A989
IP Configuration
DHCP
Static
IPv4 Address
192.168.0.2
Subnet Mask
255.255.255.0

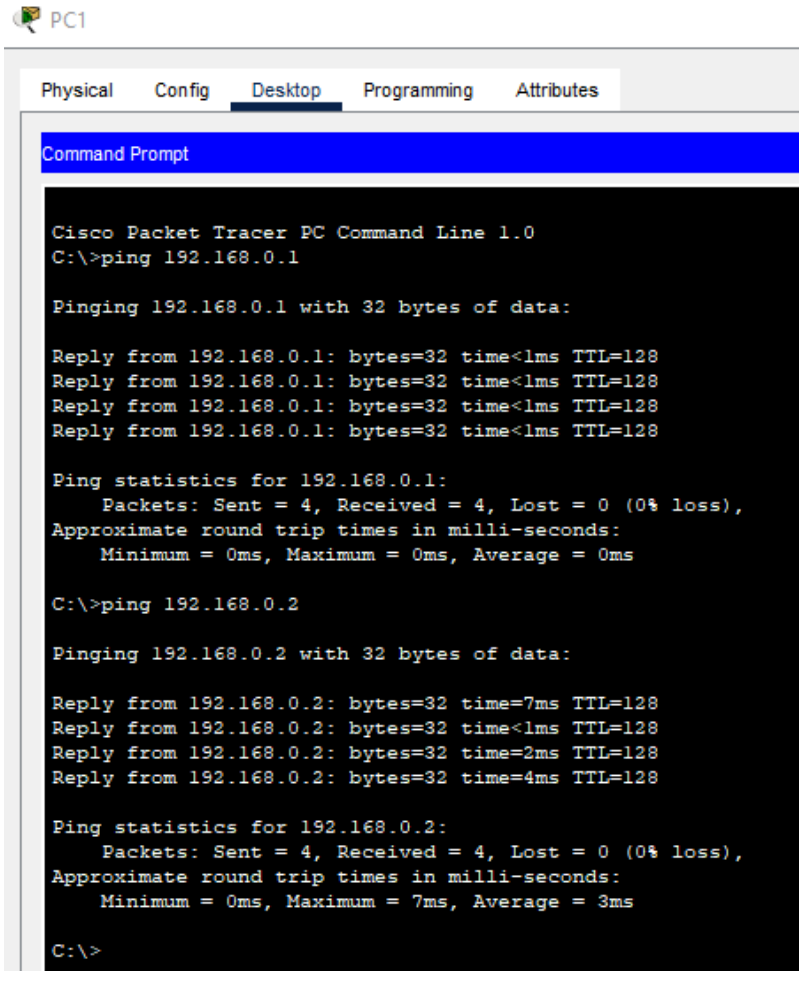

PC2
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
FastEthernet0
Port Status
Bandwidth
Duplex
MAC Address
0004.9AD7.2823
IP Configuration
DHCP
Static
IPv4 Address
192.168.0.3
Subnet Mask
255.255.255.0

Step 3:

From PC0:



From PC1:



From PC2:

PC2

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:

Reply from 192.168.0.1: bytes=32 time=1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.0.2

Pinging 192.168.0.2 with 32 bytes of data:

Reply from 192.168.0.2: bytes=32 time=1ms TTL=128
Reply from 192.168.0.2: bytes=32 time<1ms TTL=128
Reply from 192.168.0.2: bytes=32 time<1ms TTL=128
Reply from 192.168.0.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

Step 4:

Multilayer Switch0

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#monitor session 1 source interface f0/1 both
Switch(config)#
```

Step 5:

Multilayer Switch0

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#monitor session 1 source interface f0/1 both
Switch(config)#monitor session 1 destination interface f0/3
Switch(config)#
```

Step 6:

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC1	ICMP
	0.001	PC1	Multilayer Switch0	ICMP
	0.002	Multilayer Switch0	PC0	ICMP
	0.002	Multilayer Switch0	PC2	ICMP
	0.003	PC0	Multilayer Switch0	ICMP
	0.004	Multilayer Switch0	PC1	ICMP
	0.004	Multilayer Switch0	PC2	ICMP
	0.997	--	Multilayer Switch0	STP

Note: I can only show the above image as a proff because you cannot set the pc to have promiscuous mode in packet tracer.

PC2

```
C:\>netsh ?

Usage: netsh [Command]

The following commands are available:
?               - Displays a list of commands.
interface       - Changes to the `netsh interface' context.

To view help for a command, type the command, followed by a space, and then type ?.

C:\>netsh interface ?

The following commands are available:

?               - Displays a list of commands.
ipv6            - Changes to the `netsh interface ipv6' context.
isatap          - Changes to the `netsh interface isatap' context.

To view help for a command, type the command, followed by a space, and then type ?.

C:\>
```

Step 7:

Multilayer Switch0

```
Switch#Switch#show monitor session 1
                  ^
% Invalid input detected at '^' marker.

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


Switch#
```

Lab Analysis:

1. **For network monitoring and troubleshooting**
2. **VLANs create separate broadcast domains. Broadcasts (like ARP requests) are confined within a VLAN. To enable communication between VLANs, you need a router (or a layer-3 switch) to route traffic between them. The router connects to each VLAN through SVIs.**
3. **By default, ports in a multilayer switch operate at Layer 2 (data link layer). These ports function as regular switch ports, forwarding frames based on MAC addresses. However, multilayer switches can also have SVIs (Switch Virtual Interfaces) that allow them to perform routing at Layer 3 when needed.**
4. **An SVI (Switch Virtual Interface) represents a logical Layer-3 interface on a switch. It connects a VLAN on the switch to the Layer 3 router engine within the same device. SVIs allow inter-VLAN routing, enabling communication between VLANs. They provide a default gateway for each VLAN, support bridging configurations, and offer Layer 3 IP connectivity to the switch.**
5. **When a system in a VLAN sends a broadcast, that broadcast message does not go beyond the VLAN. It improves security, since fewer hosts will see traffic that the switches flood from any single other host whether the traffic is a multicast, broadcast, or unknown unicast (a destination unicast MAC address that's not in the SAT). Furthermore, security policies can be configured for specific VLANs. Finally, using one or more switches with multiple VLANs allows for a more flexible network topology. Users and their devices can be logically grouped in switches, through VLANs, by department or by users that need to work together for a certain amount of time, instead of physically by actual locations.**

Key Term Quiz

1. **subnet**
2. **Access Port**
3. **Trunk Port**
4. **SPAN**
5. **Multi layer**