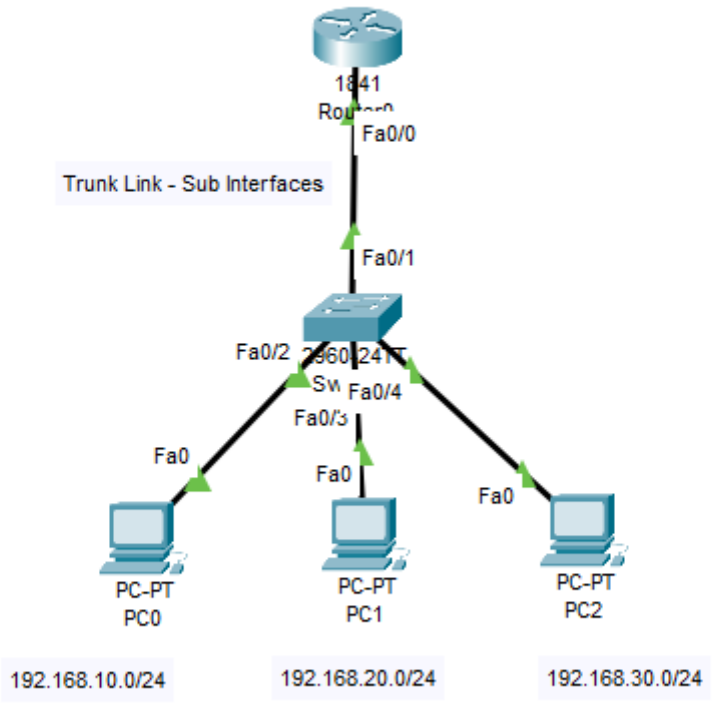
Cisco IOS Router on a Stick

Network Topology



Router0 Configuration Commands

```
Router0>enable
Router0#configure terminal
Router0(config)#interface fastEthernet 0/0
Router0(config-if)#no shutdown
Router0(config-if)#interface fastEthernet 0/0.10
Router0(config-subif)#encapsulation dot1q 10
Router0(config-subif)#ip address 192.168.10.1 255.255.255.0
Router0(config-if)#interface fastEthernet 0/0.20
Router0(config-subif)#encapsulation dot1q 20
Router0(config-subif)#ip address 192.168.20.1 255.255.255.0
Router0(config-if)#interface fastEthernet 0/0.30
Router0(config-subif)#encapsulation dot1q 30
Router0(config-subif)#ip address 192.168.30.1 255.255.255.0
Router0(config-subif)#end
```

Router0#show ip interface brief

```
Router0#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
FastEthernet0/0        unassigned      YES unset  up                    up
FastEthernet0/0.10     192.168.10.1    YES manual up                    up
FastEthernet0/0.20     192.168.20.1    YES manual up                    up
FastEthernet0/0.30     192.168.30.1    YES manual up                    up
FastEthernet0/1        unassigned      YES unset  administratively down down
Vlan1                  unassigned      YES unset  administratively down down
```

Router0#show interfaces

```
FastEthernet0/0.10 is up, line protocol is up (connected)
  Hardware is PQUICC_FEC, address is 0001.649a.6801 (bia 0001.649a.6801)
  Internet address is 192.168.10.1/24
  MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.1Q Virtual LAN, Vlan ID 10
  ARP type: ARPA, ARP Timeout 04:00:00,
  Last clearing of "show interface" counters never
FastEthernet0/0.20 is up, line protocol is up (connected)
  Hardware is PQUICC_FEC, address is 0001.649a.6801 (bia 0001.649a.6801)
  Internet address is 192.168.20.1/24
  MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.1Q Virtual LAN, Vlan ID 20
  ARP type: ARPA, ARP Timeout 04:00:00,
  Last clearing of "show interface" counters never
FastEthernet0/0.30 is up, line protocol is up (connected)
  Hardware is PQUICC_FEC, address is 0001.649a.6801 (bia 0001.649a.6801)
  Internet address is 192.168.30.1/24
  MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.1Q Virtual LAN, Vlan ID 30
  ARP type: ARPA, ARP Timeout 04:00:00,
  Last clearing of "show interface" counters never
```

Switch0 Configuration Commands

Switch0>enable
Switch0#configure terminal
Switch0(config)#interface fastEthernet 0/1
Switch0(config-if)#switchport mode trunk
Switch0(config-if)#interface fastEthernet 0/2
Switch0(config-if)#switchport access vlan 10
Switch0(config-if)#interface fastEthernet 0/3
Switch0(config-if)#switchport access vlan 20
Switch0(config-if)#interface fastEthernet 0/4
Switch0(config-if)#switchport access vlan 30
Switch0(config-if)#end
Switch0#show vlan brief

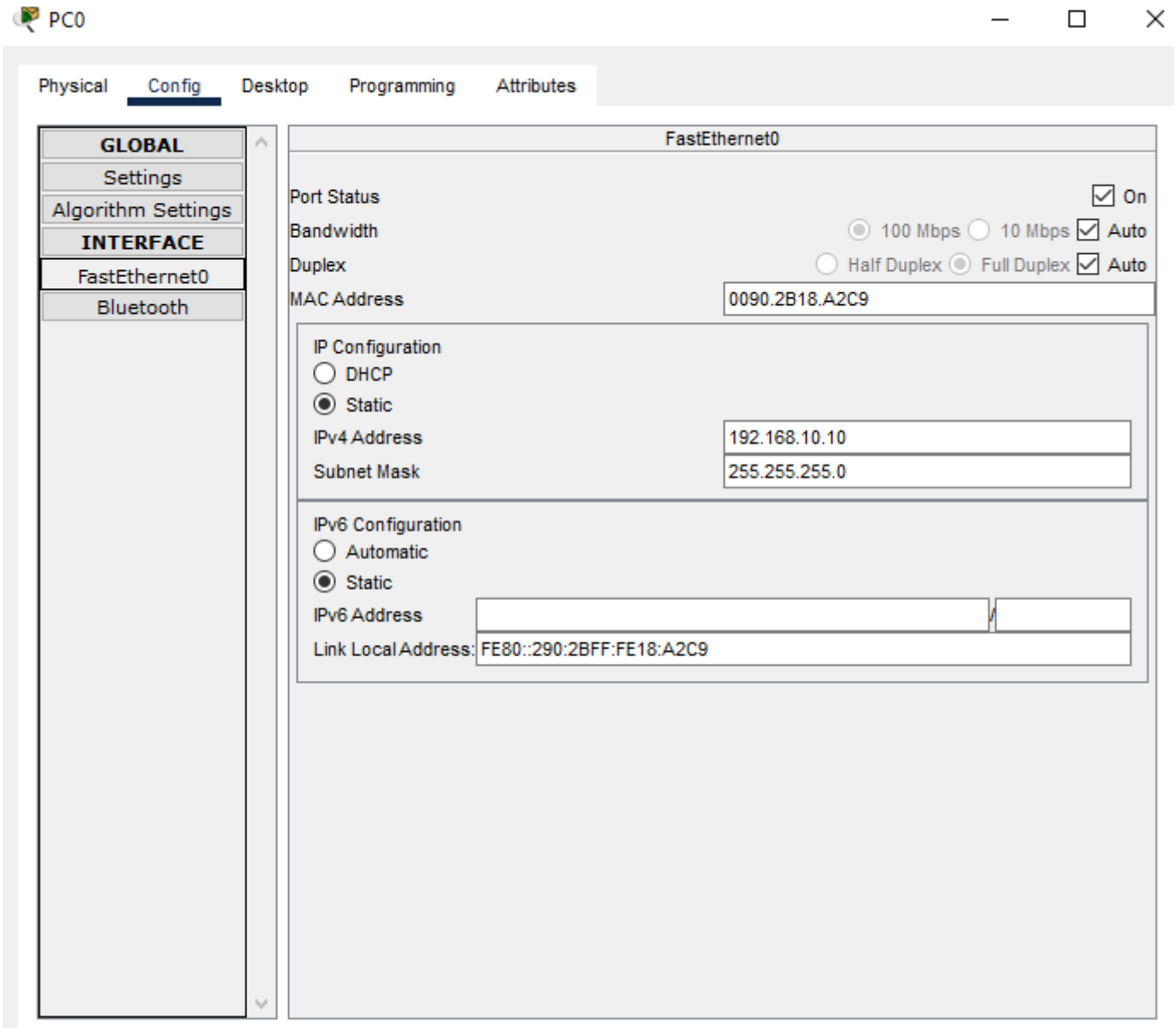
```
Switch0#show vlan brief

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    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
10   VLAN0010                          active    Fa0/2
20   VLAN0020                          active    Fa0/3
30   VLAN0030                          active    Fa0/4
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
```

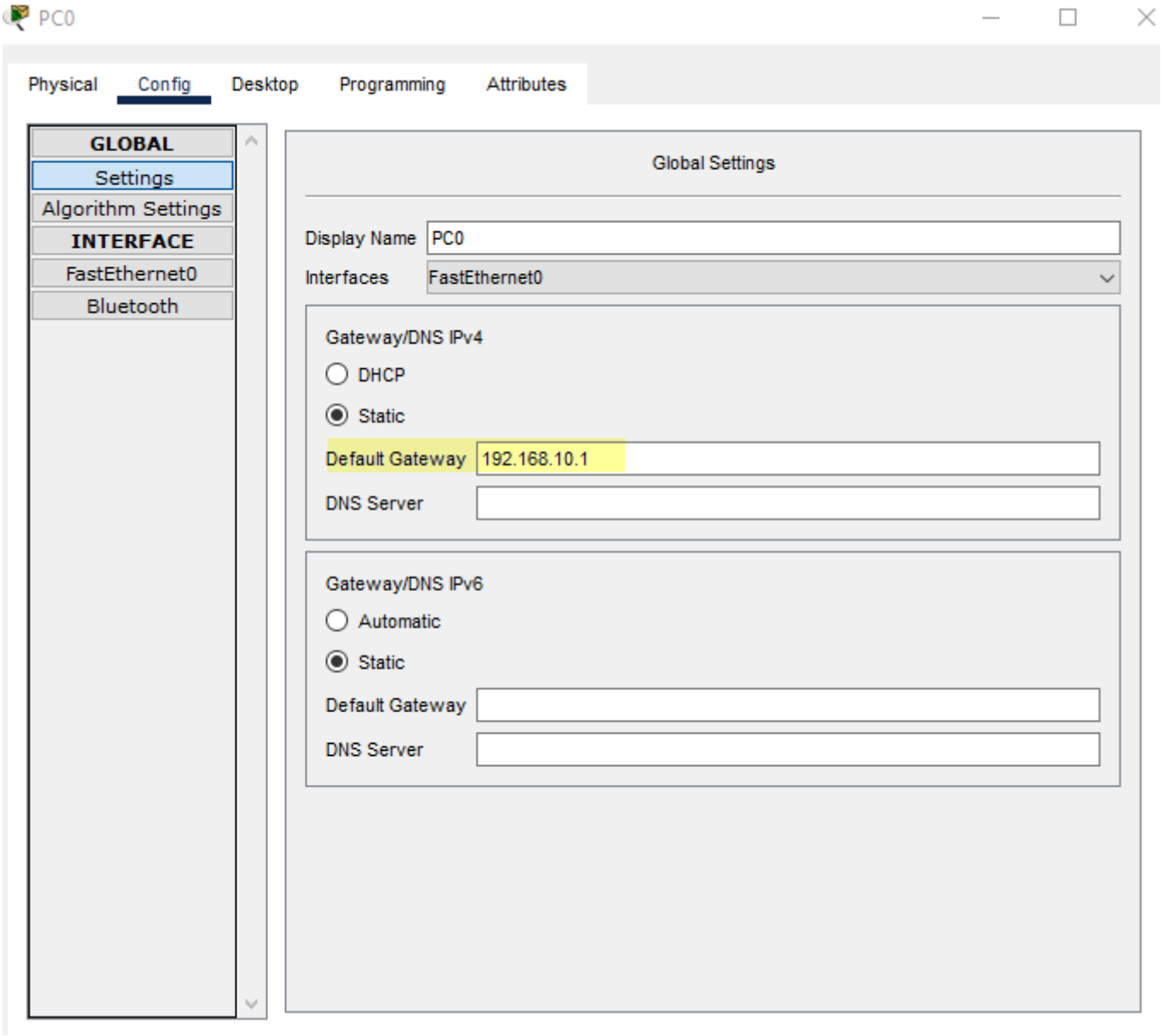
Switch0#show interfaces status

```
Switch0#show interfaces status
Port      Name               Status       Vlan       Duplex  Speed Type
Fa0/1                        connected    trunk      auto    auto  10/100BaseTX
Fa0/2                        connected    10         auto    auto  10/100BaseTX
Fa0/3                        connected    20         auto    auto  10/100BaseTX
Fa0/4                        connected    30         auto    auto  10/100BaseTX
Fa0/5                        notconnect   1          auto    auto  10/100BaseTX
Fa0/6                        notconnect   1          auto    auto  10/100BaseTX
Fa0/7                        notconnect   1          auto    auto  10/100BaseTX
Fa0/8                        notconnect   1          auto    auto  10/100BaseTX
Fa0/9                        notconnect   1          auto    auto  10/100BaseTX
Fa0/10                       notconnect   1          auto    auto  10/100BaseTX
Fa0/11                       notconnect   1          auto    auto  10/100BaseTX
Fa0/12                       notconnect   1          auto    auto  10/100BaseTX
Fa0/13                       notconnect   1          auto    auto  10/100BaseTX
Fa0/14                       notconnect   1          auto    auto  10/100BaseTX
Fa0/15                       notconnect   1          auto    auto  10/100BaseTX
Fa0/16                       notconnect   1          auto    auto  10/100BaseTX
Fa0/17                       notconnect   1          auto    auto  10/100BaseTX
Fa0/18                       notconnect   1          auto    auto  10/100BaseTX
Fa0/19                       notconnect   1          auto    auto  10/100BaseTX
Fa0/20                       notconnect   1          auto    auto  10/100BaseTX
Fa0/21                       notconnect   1          auto    auto  10/100BaseTX
Fa0/22                       notconnect   1          auto    auto  10/100BaseTX
Fa0/23                       notconnect   1          auto    auto  10/100BaseTX
Fa0/24                       notconnect   1          auto    auto  10/100BaseTX
Gig0/1                       notconnect   1          auto    auto  10/100BaseTX
Gig0/2                       notconnect   1          auto    auto  10/100BaseTX
```

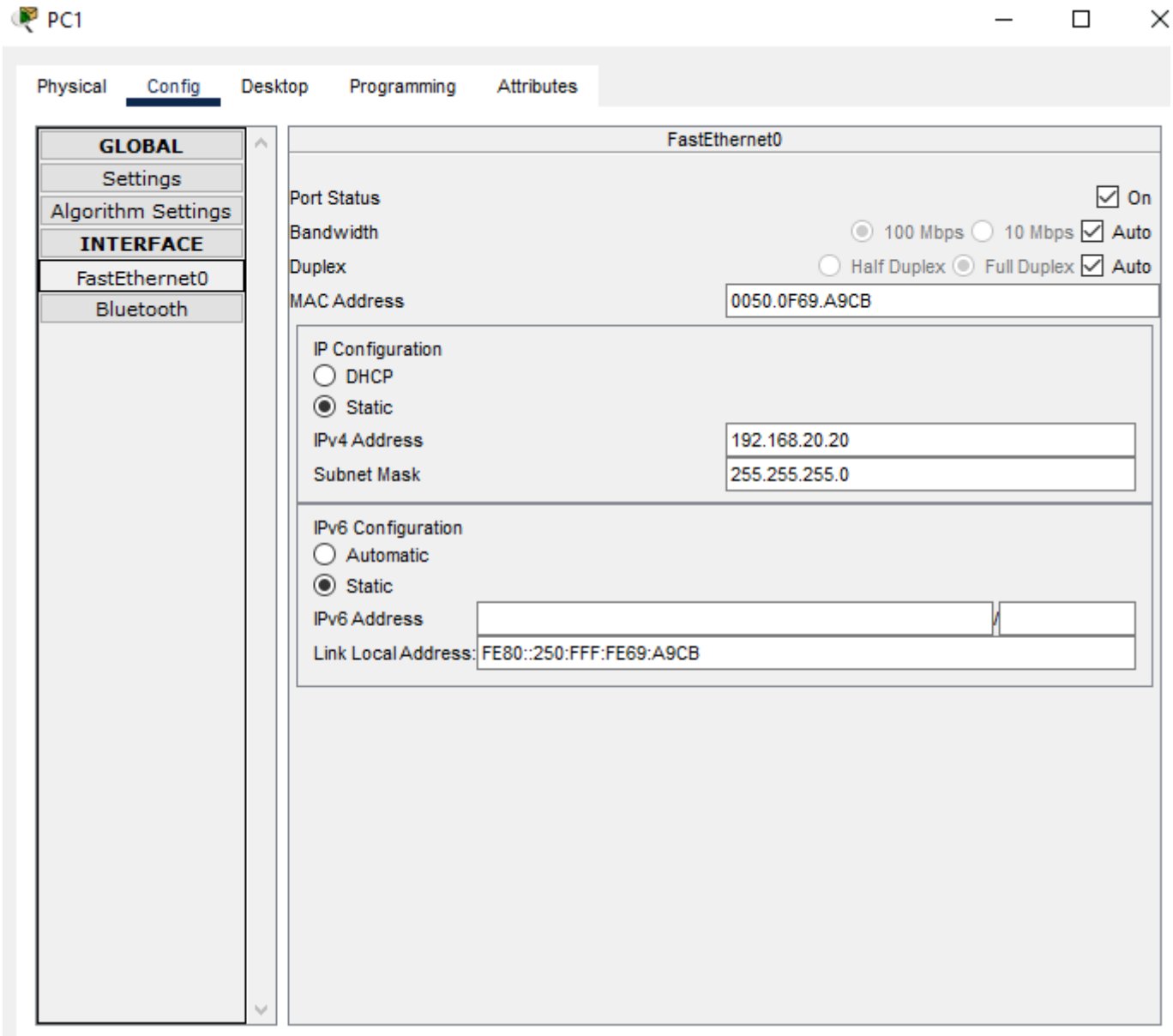
Configure the Three PCs

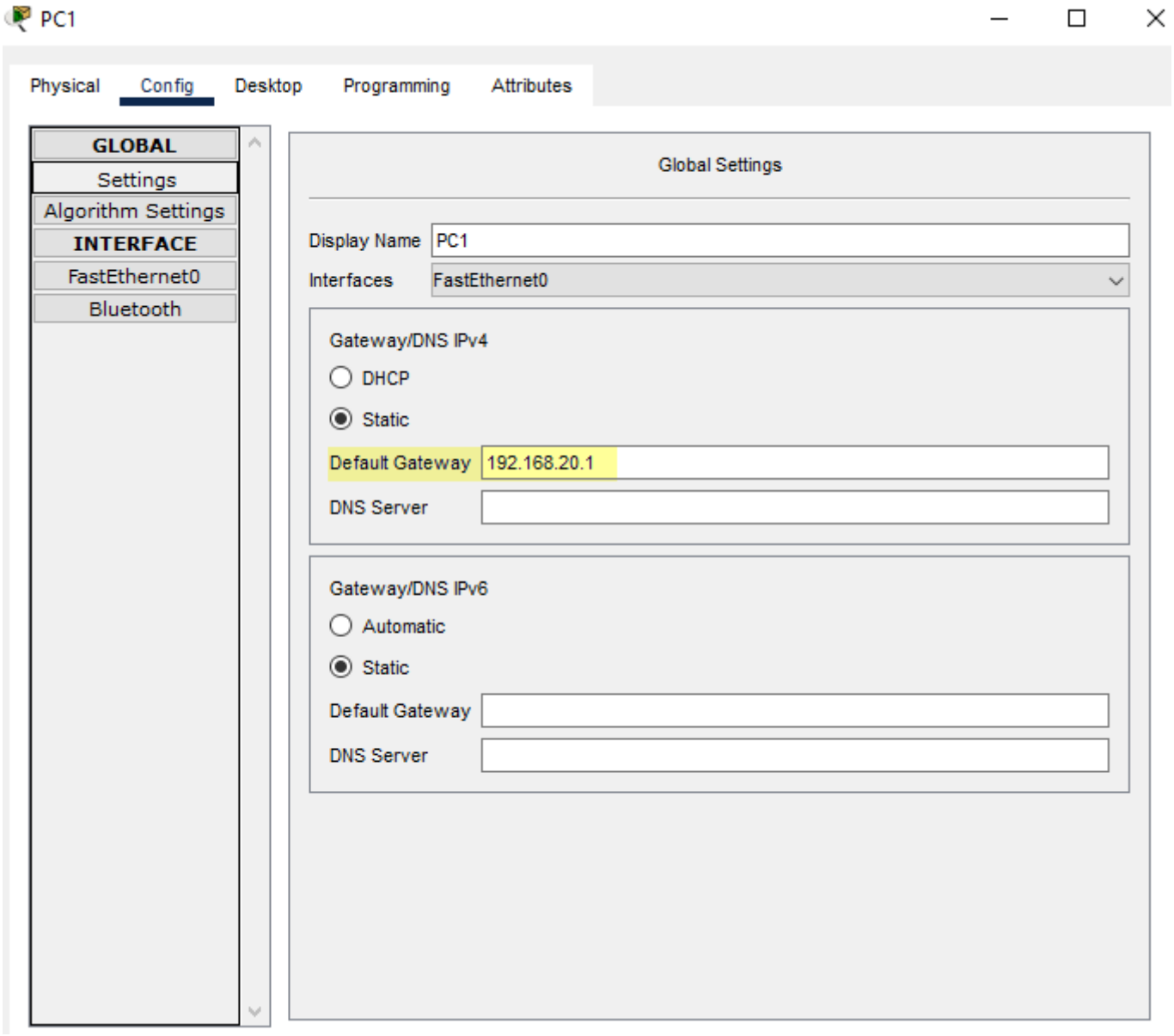
PC0


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
0090.2B18.A2C9
IP Configuration
DHCP
Static
IPv4 Address
192.168.10.10
Subnet Mask
255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address:
FE80::290:2BFF:FE18:A2C9

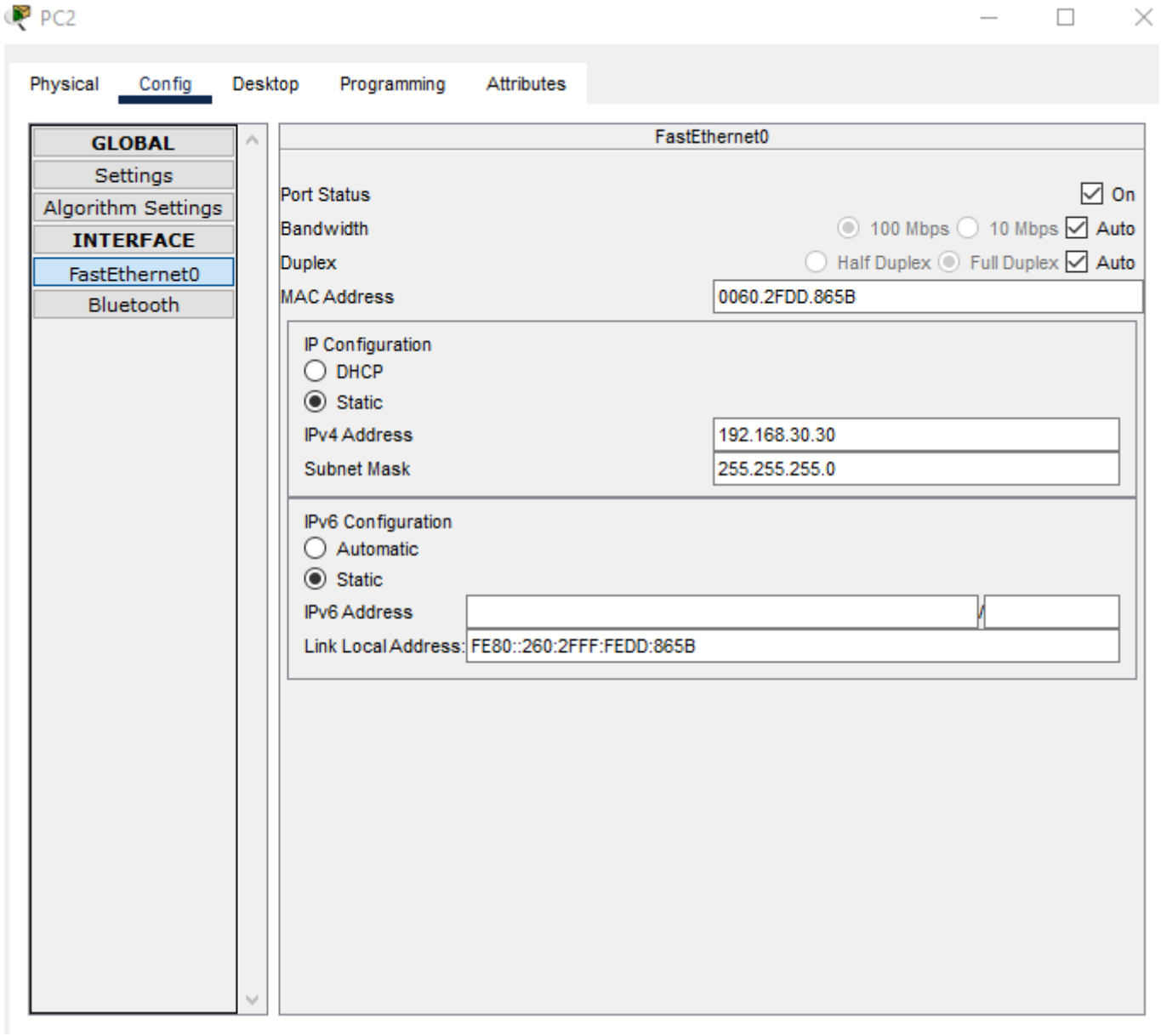

PC0
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
Global Settings
Display Name
PC0
Interfaces
FastEthernet0
Gateway/DNS IPv4
DHCP
Static
Default Gateway
192.168.10.1
DNS Server
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server

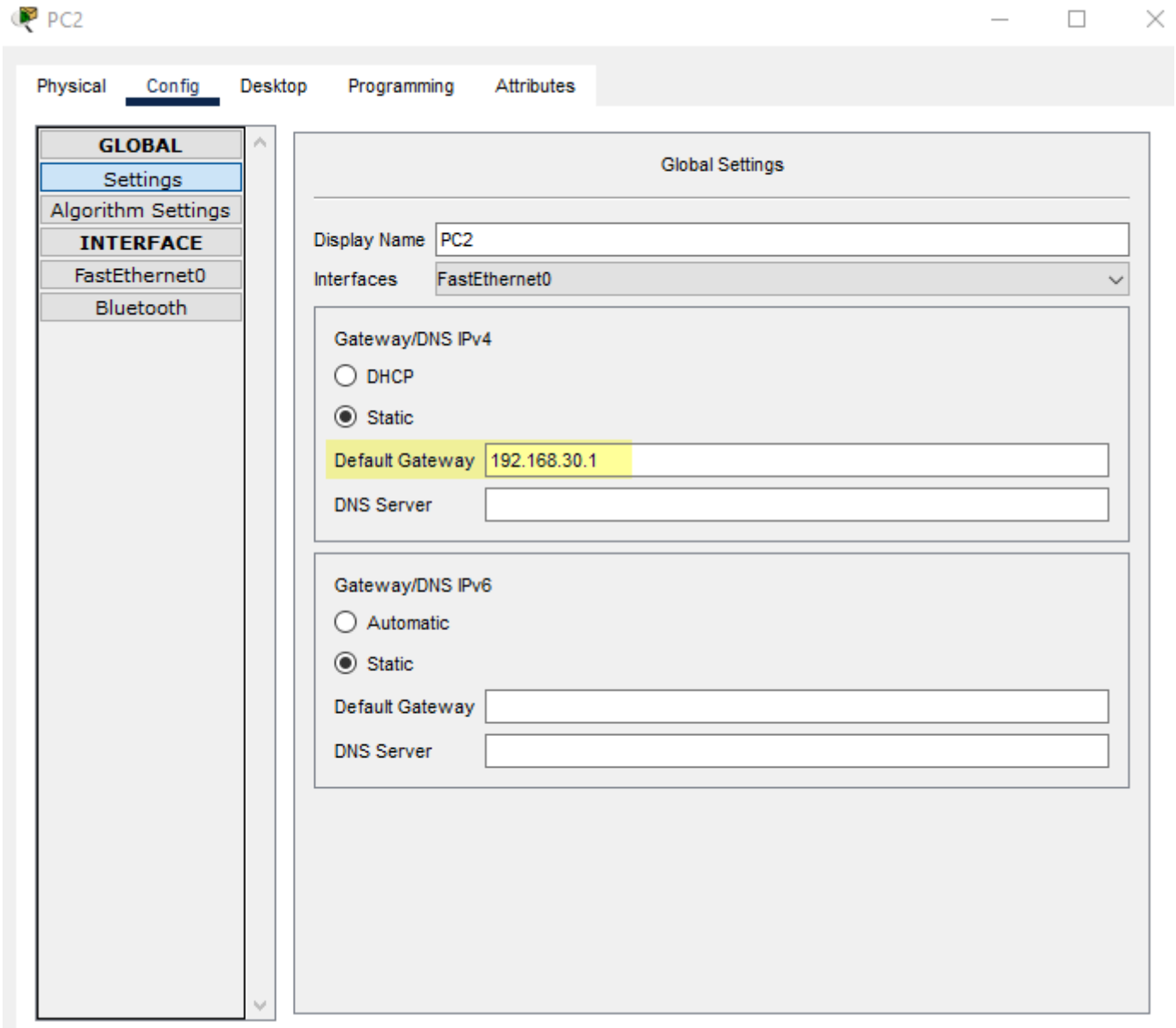
PC1


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
0050.0F69.A9CB
IP Configuration
DHCP
Static
IPv4 Address
192.168.20.20
Subnet Mask
255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address:
FE80::250:FFF:FE69:A9CB

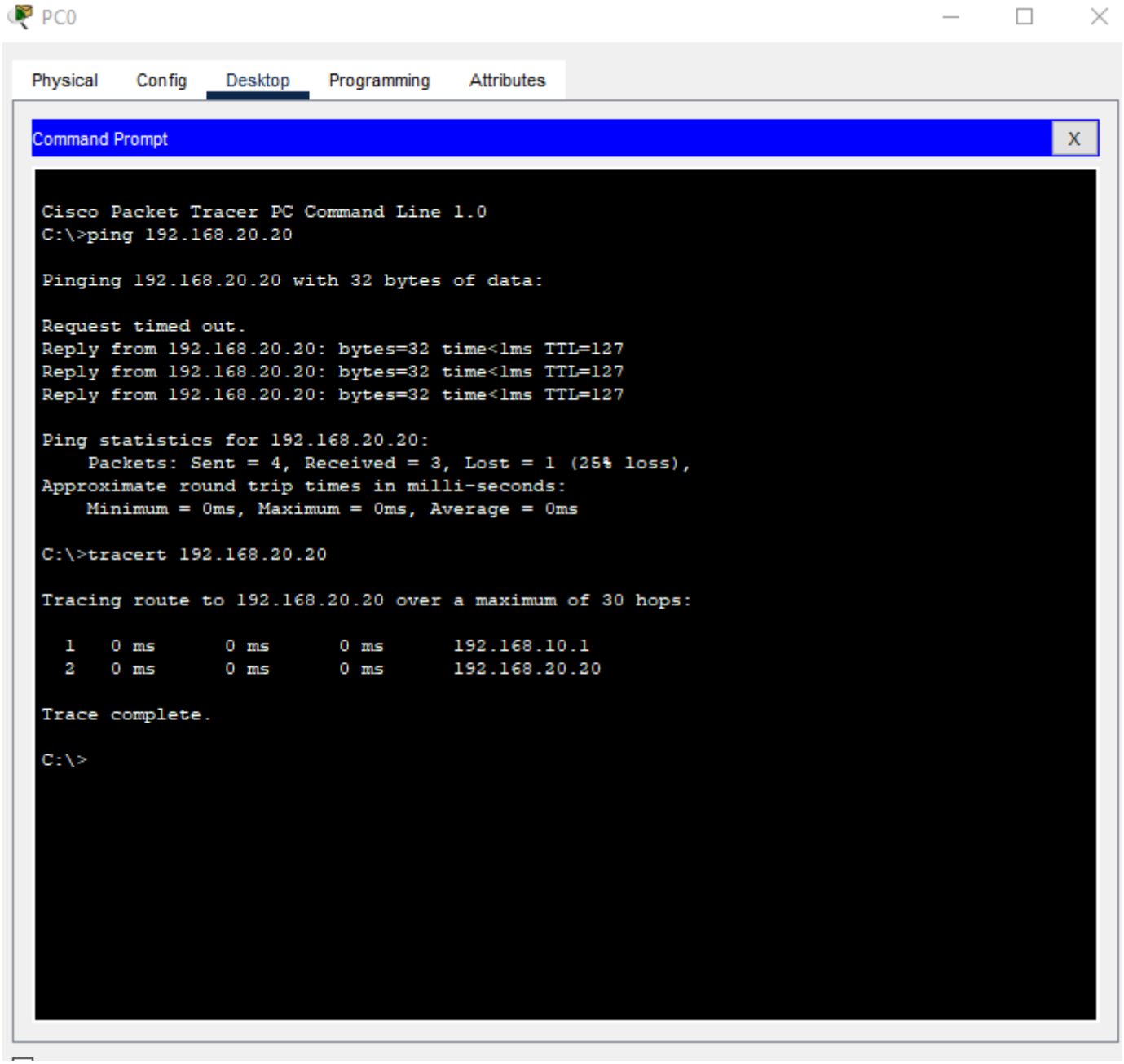

PC1
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
Global Settings
Display Name
PC1
Interfaces
FastEthernet0
Gateway/DNS IPv4
DHCP
Static
Default Gateway
192.168.20.1
DNS Server
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server

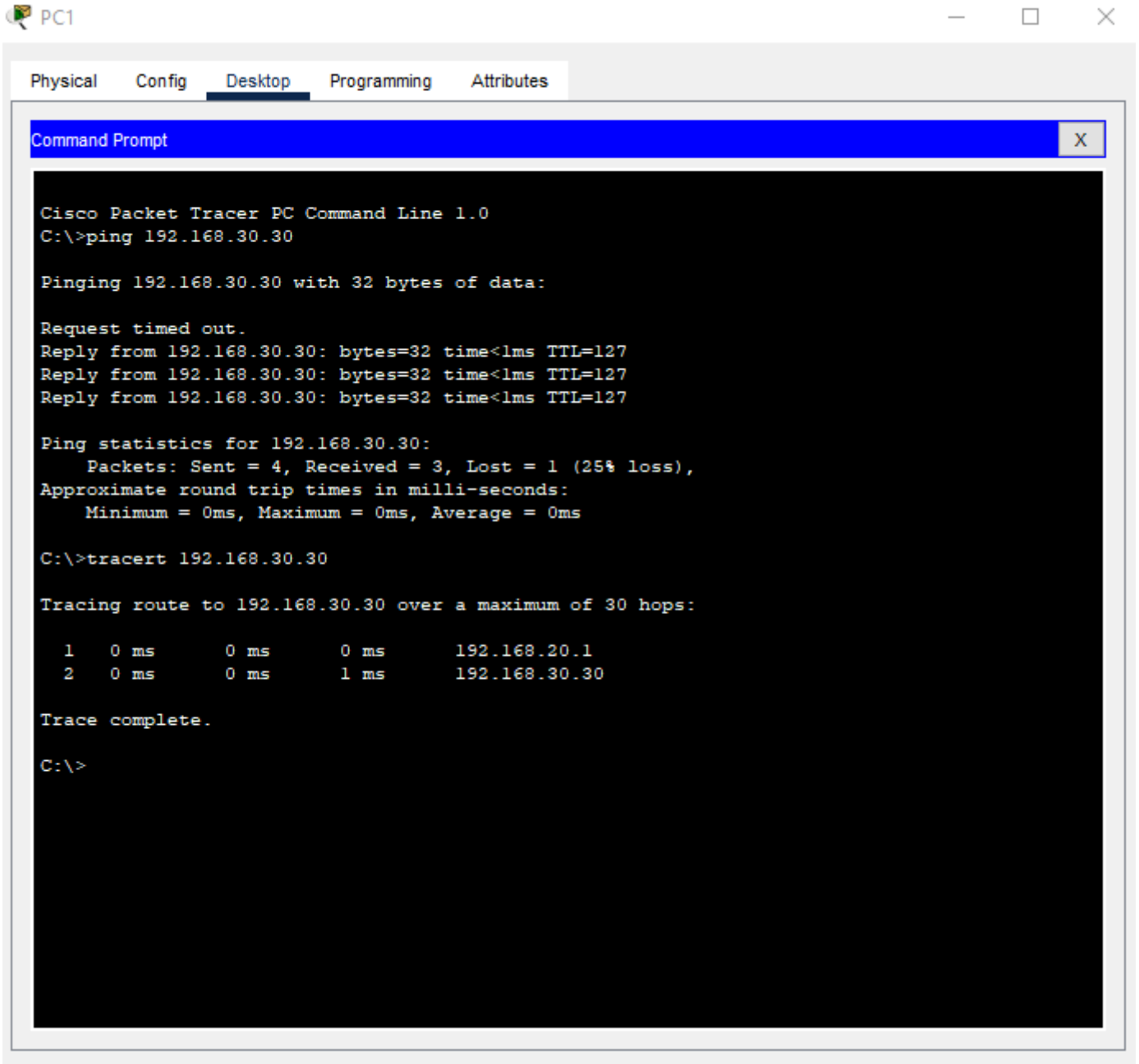
PC2

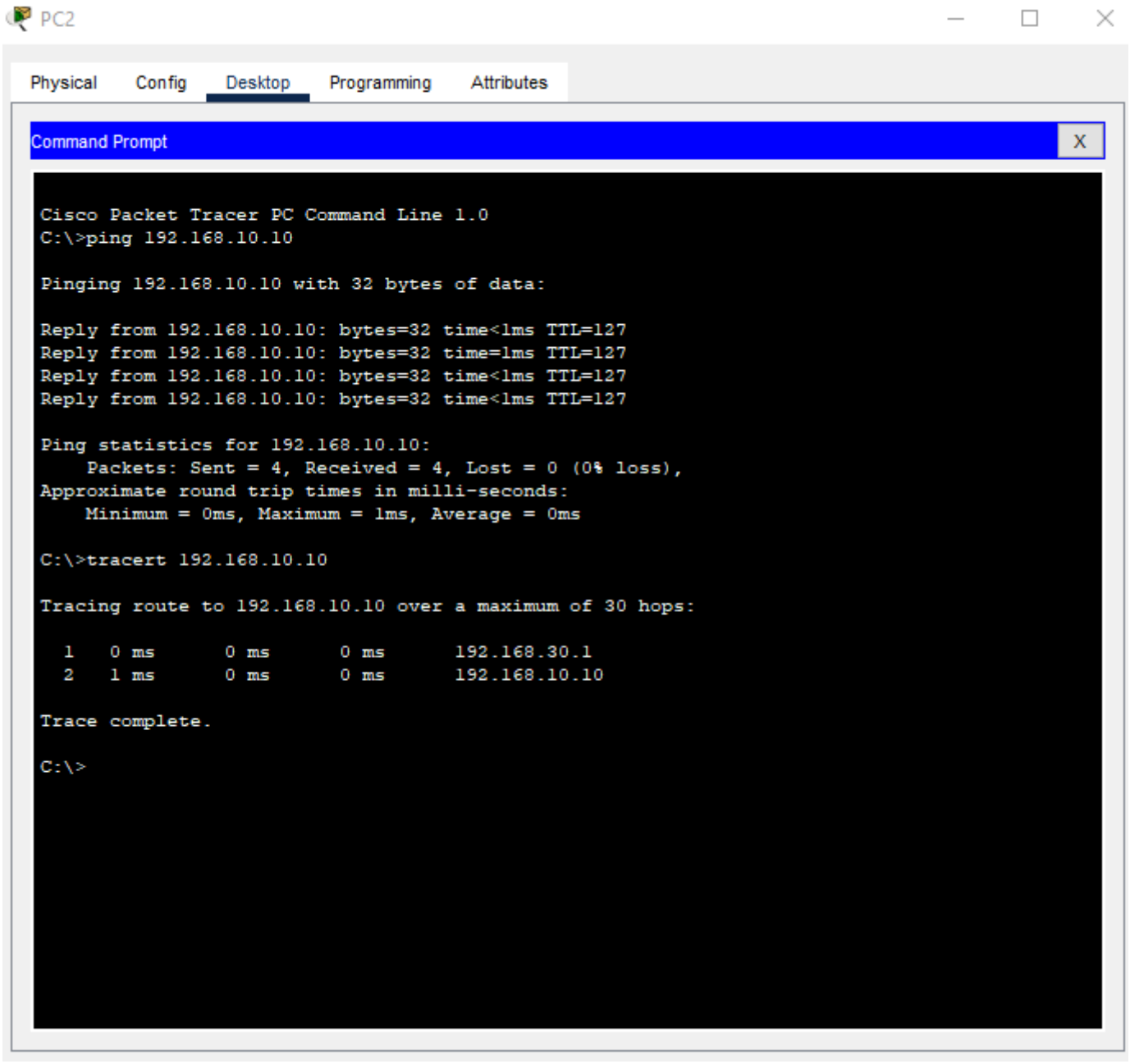

PC2
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
FastEthernet0
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
0060.2FDD.865B
IP Configuration
DHCP
Static
IPv4 Address
192.168.30.30
Subnet Mask
255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address:
FE80::260:2FFF:FEDD:865B



Test with Ping and Tracert


PC0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.20.20
Pinging 192.168.20.20 with 32 bytes of data:
Request timed out.
Reply from 192.168.20.20: bytes=32 time<1ms TTL=127
Reply from 192.168.20.20: bytes=32 time<1ms TTL=127
Reply from 192.168.20.20: bytes=32 time<1ms TTL=127
Ping statistics for 192.168.20.20:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>tracert 192.168.20.20
Tracing route to 192.168.20.20 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 192.168.10.1
2 0 ms 0 ms 0 ms 192.168.20.20
Trace complete.
C:\>


PC1
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.30.30
Pinging 192.168.30.30 with 32 bytes of data:
Request timed out.
Reply from 192.168.30.30: bytes=32 time<1ms TTL=127
Reply from 192.168.30.30: bytes=32 time<1ms TTL=127
Reply from 192.168.30.30: bytes=32 time<1ms TTL=127
Ping statistics for 192.168.30.30:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>tracert 192.168.30.30
Tracing route to 192.168.30.30 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 192.168.20.1
2 0 ms 0 ms 1 ms 192.168.30.30
Trace complete.
C:\>



Cisco Packet Tracer File

net12 router on a stick.pkt

Revision #2
Created 2 January 2023 15:34:09 by Glen Taylor
Updated 24 January 2023 22:45:52 by Glen Taylor