S.E.P. TECNOLÓGICO NACIONAL DE MÉXICO

INSTITUTO TECNOLÓGICO DE TUXTEPEC

INTERCONECTIVIDAD DE REDES

ALUMNA:
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NUMERO DE CONTROL:
23350594

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ACTIVIDAD:
PARAMETROS DE CONFIGURACION DE RED

CARRERA:
INGENIERIA INFORMÁTICA

FECHA DE ENTREGA
05/12/2025

INGENIERÍA INFORMÁTICA

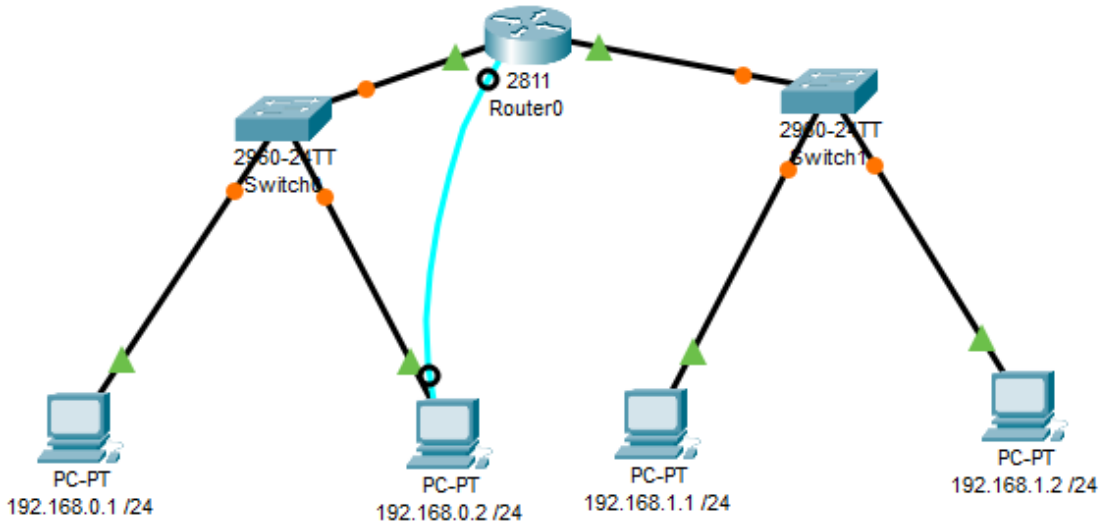
INTRODUCCIÓN

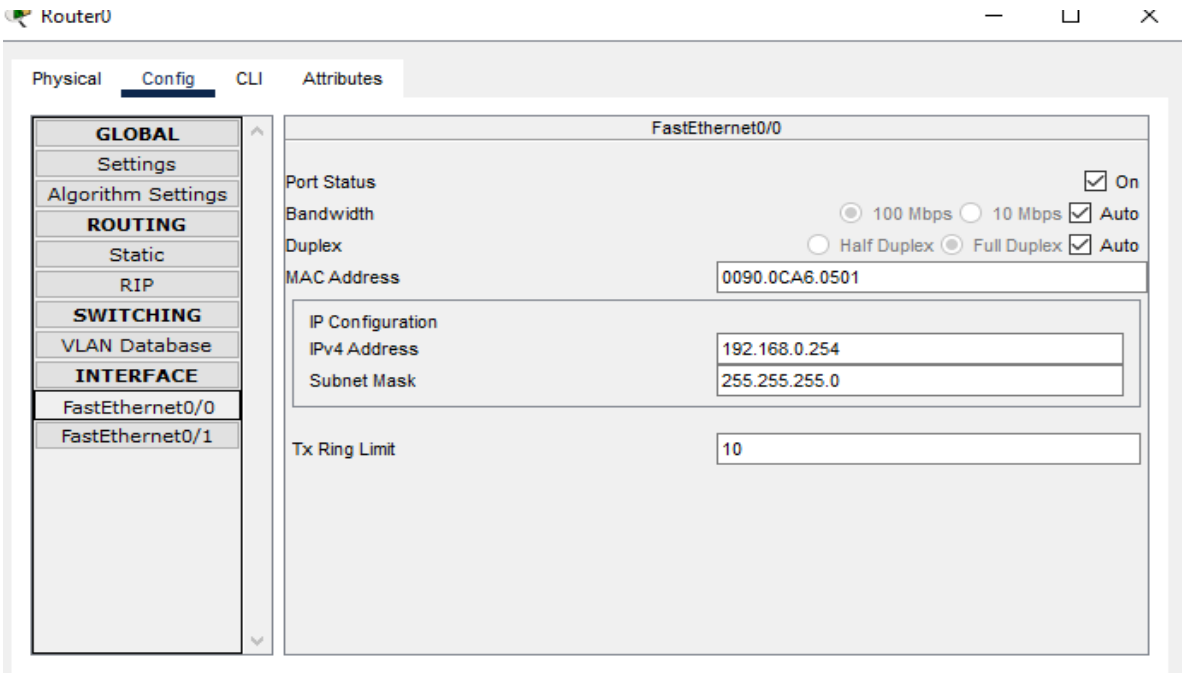
En este curso abordamos los fundamentos de la interconectividad de redes, enfocándonos en comprender cómo se comunican los dispositivos dentro de una infraestructura de red local. A través de diversas prácticas realizadas en el simulador Cisco Packet Tracer, adquirimos habilidades para conectar computadoras a switches, identificar la dirección IP correspondiente a cada dispositivo y aplicar correctamente la máscara de subred para determinar la estructura lógica de la red. Estas actividades permitieron reforzar los conceptos esenciales del diseño y configuración de redes, brindándonos una base sólida. Gracias a estas prácticas, logramos desarrollar competencias técnicas necesarias para configurar, analizar y solucionar problemas básicos de interconectividad en entornos de red.

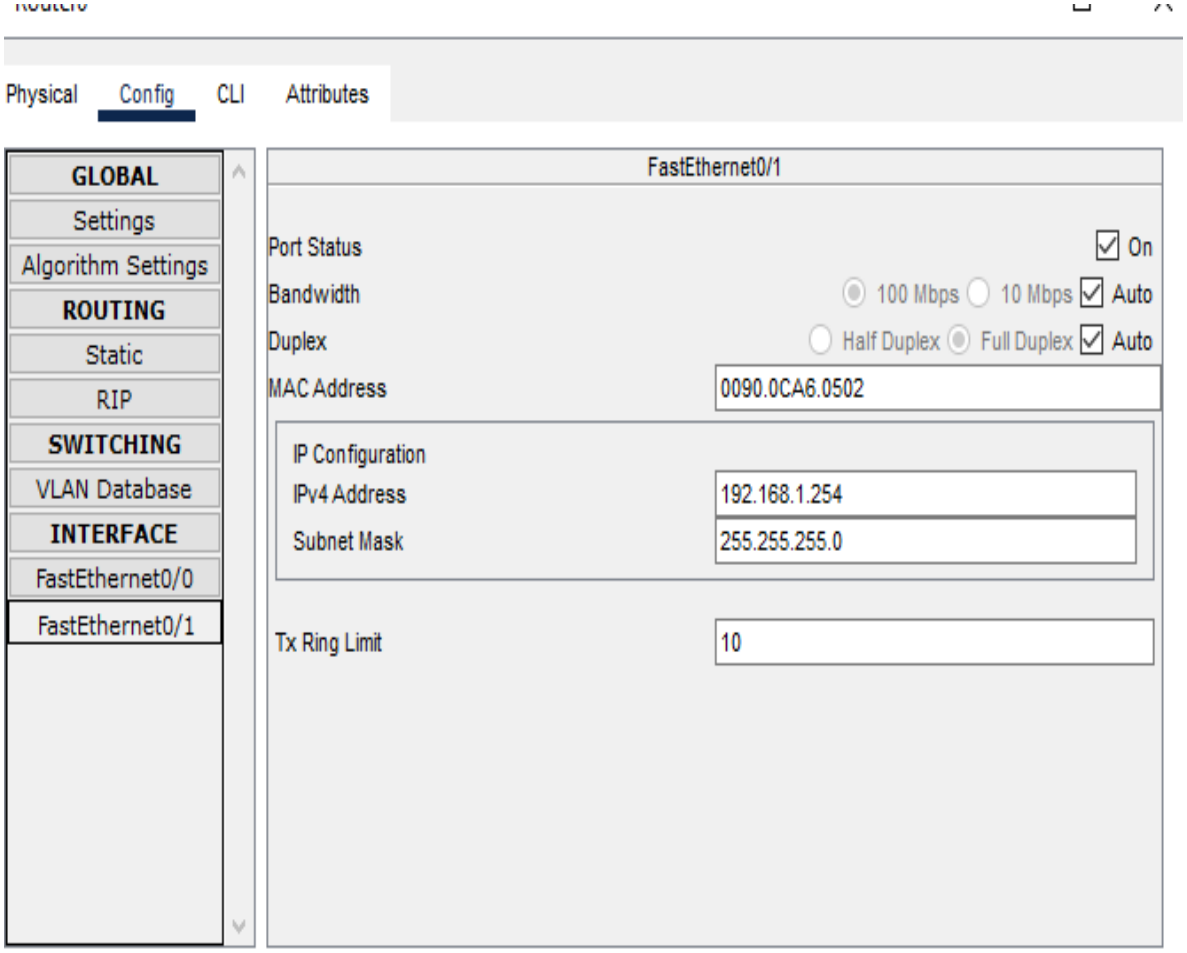
CONTENIDO DEL CURSO

1) PARÁMETROS DE CONFIGURACIÓN DE RED
2) ESTRATEGIA QUE USA EL EQUIPO DE CÓMPUTO PARA IDENTIFICAR SI UNA MÁQUINA ESTÁ EN LA MISMA RED O NO
3) CLASIFICACIONES DE DIRECCIONES IP
4) SUBNETING
5) SIMULACIÓN DE UNA RED LAN
6) ENRUTAMIENTO ESTÁTICO
7) ENRUTAMIENTO DINÁMICO RIP
8) VLAN
9) CONFIGURACIÓN DE SWITCHES
10) REDES INALÁMBRICAS

PRACTICA 1


2811
Router0
2960-24TT
Switch0
2960-24TT
Switch1
PC-PT
192.168.0.1 /24
PC-PT
192.168.0.2 /24
PC-PT
192.168.1.1 /24
PC-PT
192.168.1.2 /24

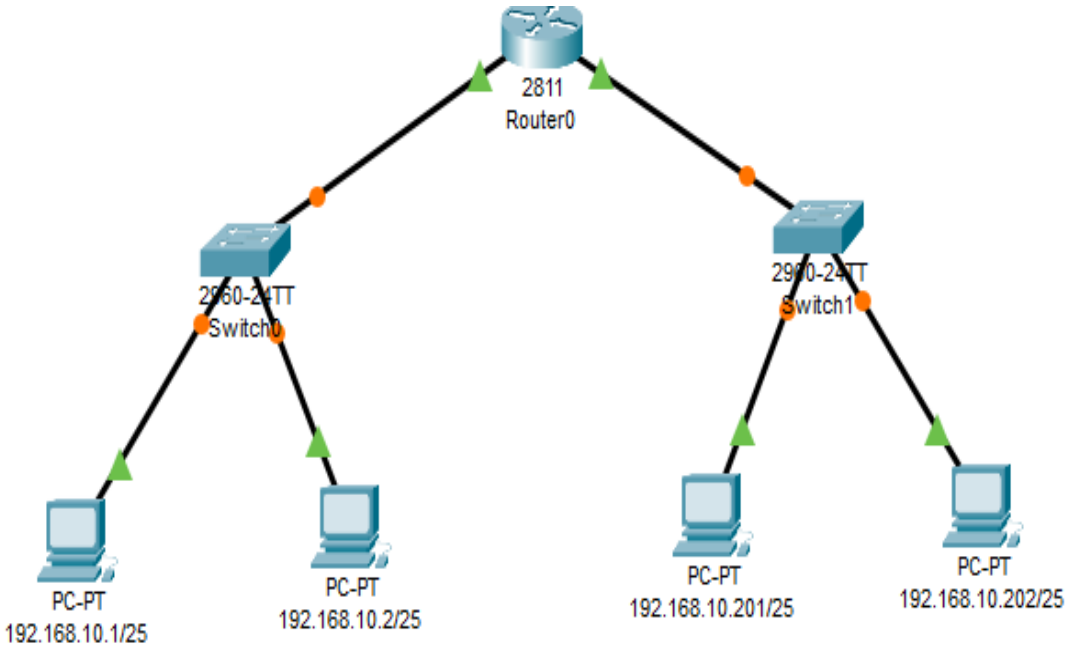

Router0
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
FastEthernet0/0
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
0090.0CA6.0501
IP Configuration
IPv4 Address
192.168.0.254
Subnet Mask
255.255.255.0
Tx Ring Limit
10

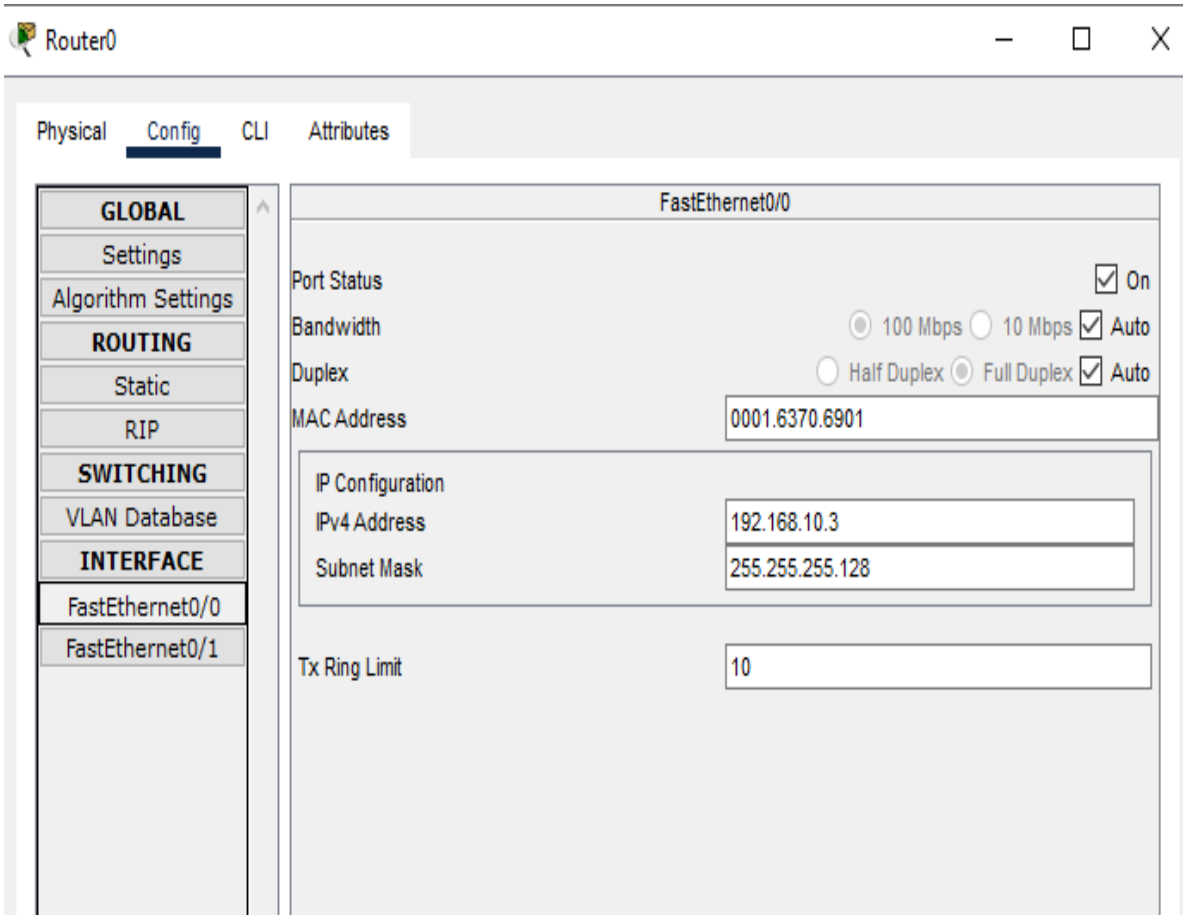


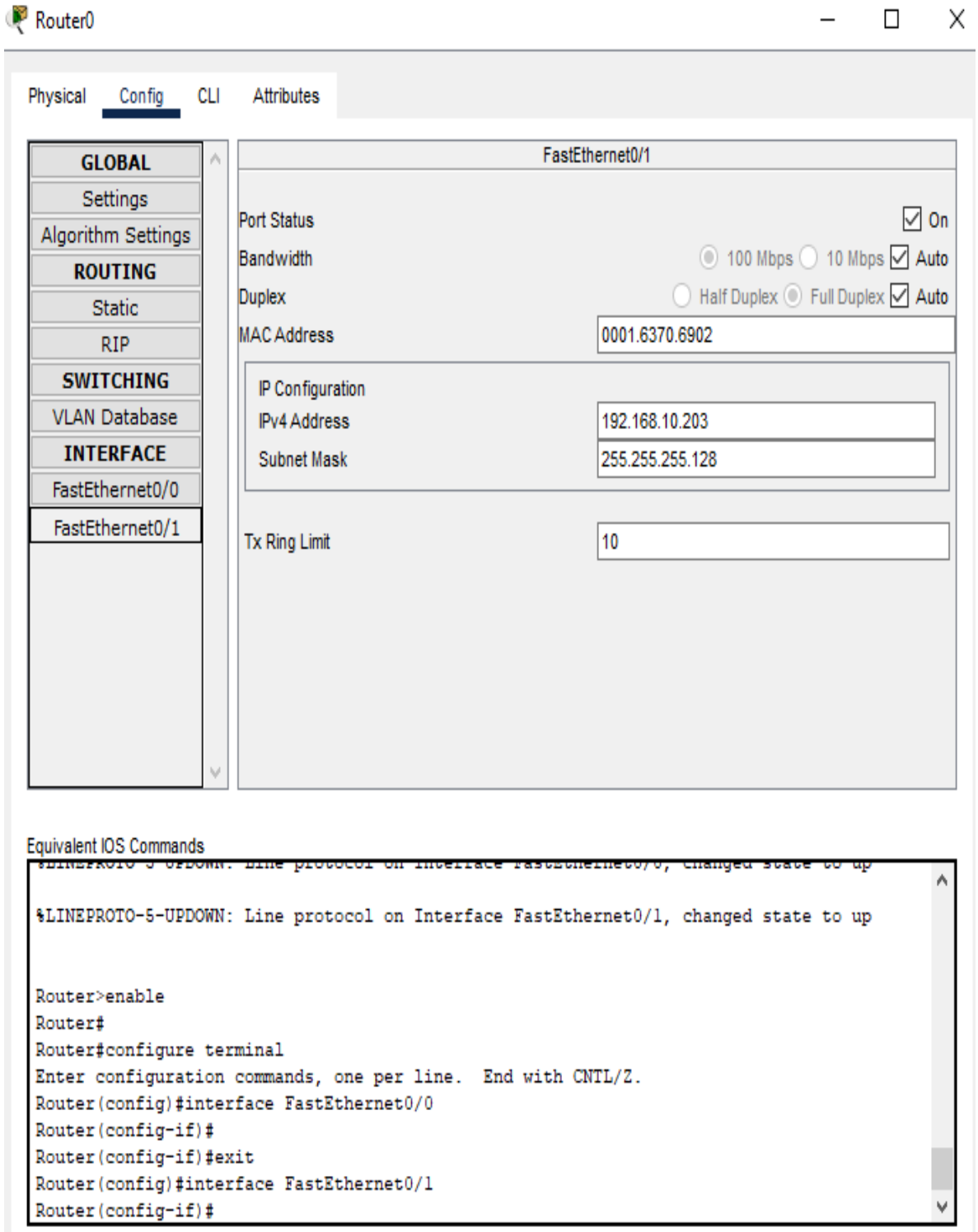
Equivalent IOS Commands

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


Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#
```

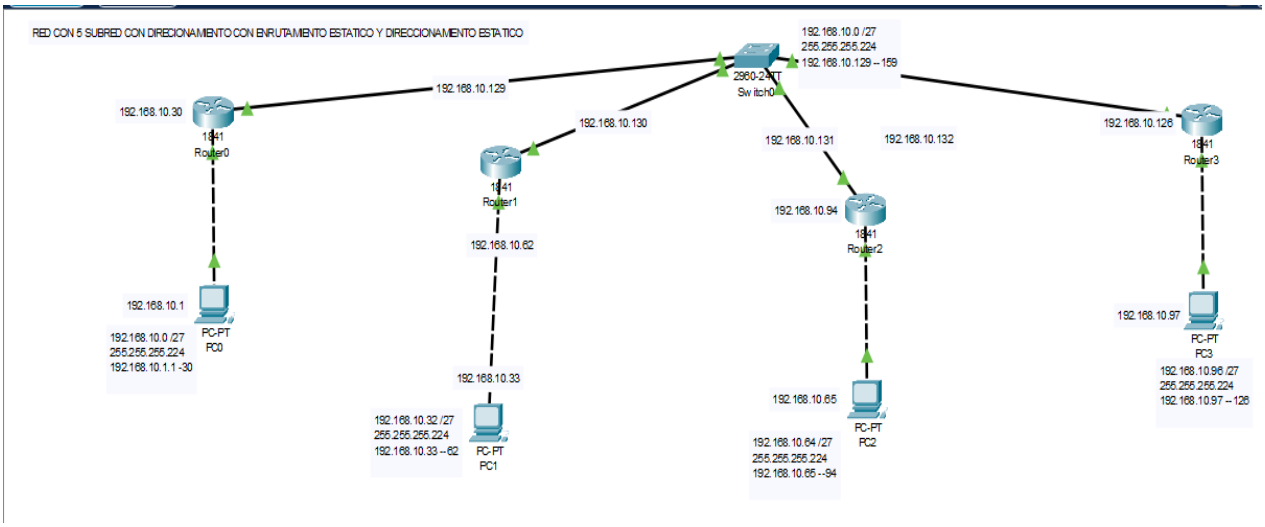
PRACTICA 2

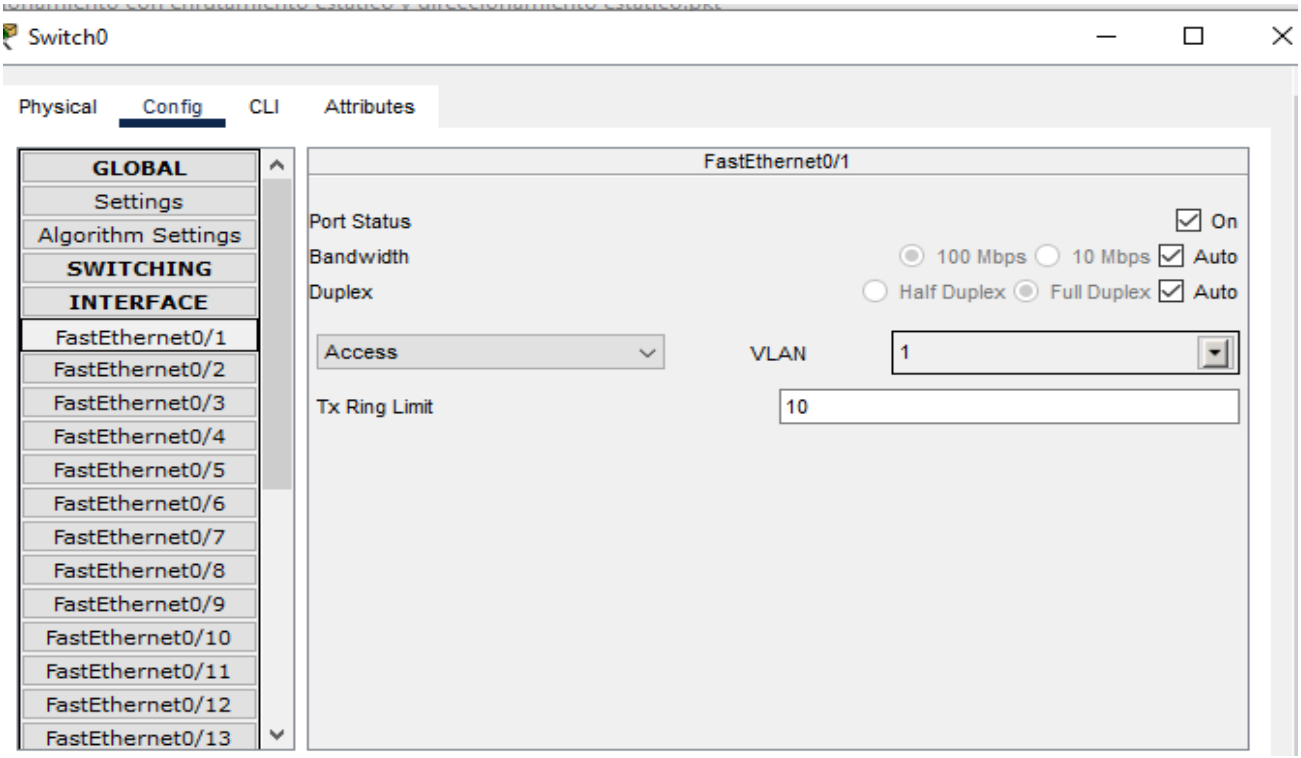

2811
Router0
2960-24TT
Switch0
2960-24TT
Switch1
PC-PT
192.168.10.1/25
PC-PT
192.168.10.2/25
PC-PT
192.168.10.201/25
PC-PT
192.168.10.202/25

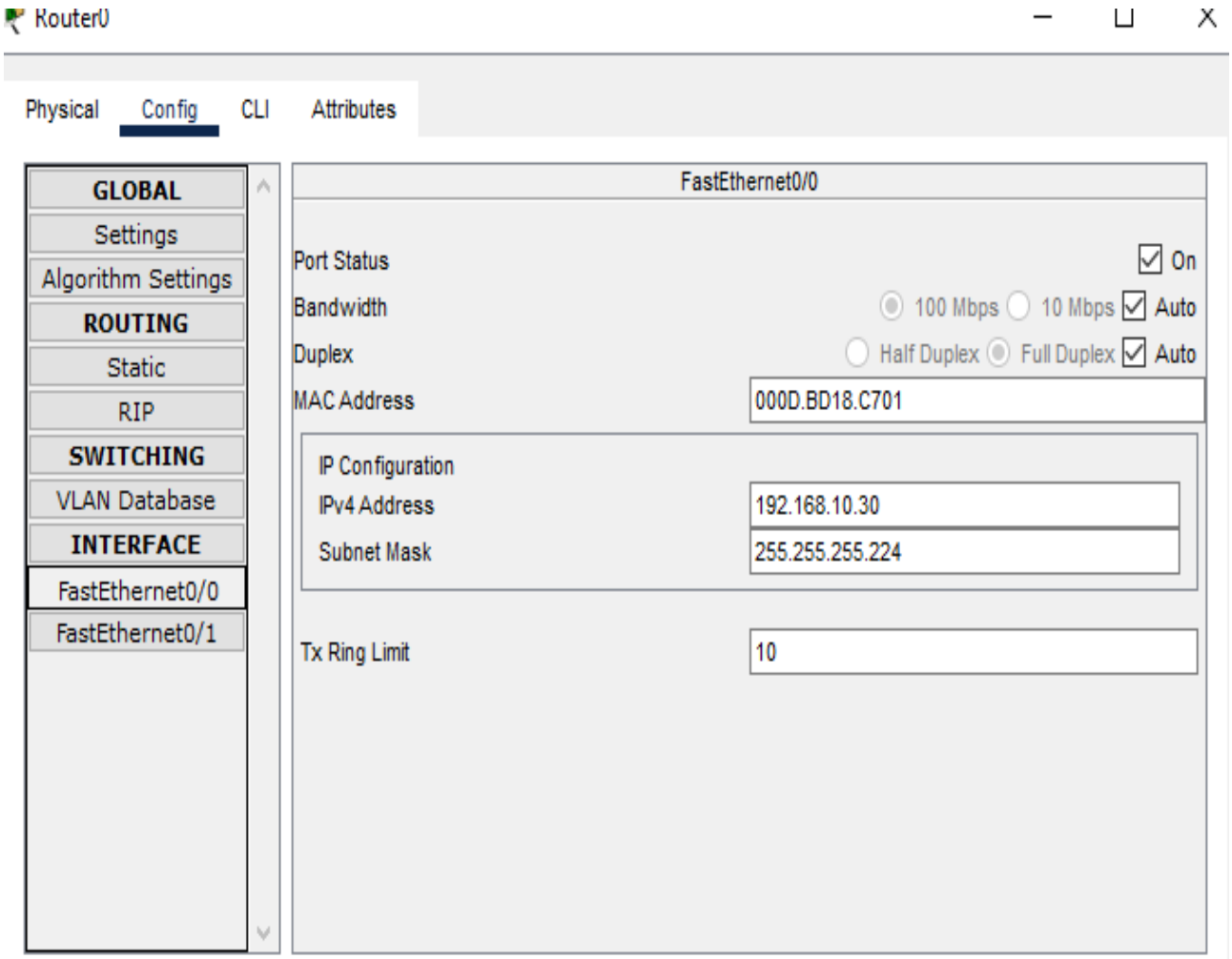

Router0
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
FastEthernet0/0
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
0001.6370.6901
IP Configuration
IPv4 Address
192.168.10.3
Subnet Mask
255.255.255.128
Tx Ring Limit
10


Router0
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
FastEthernet0/1
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
0001.6370.6902
IP Configuration
IPv4 Address
192.168.10.203
Subnet Mask
255.255.255.128
Tx Ring Limit
10
Equivalent IOS Commands
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#

- **PRACTICA_3 RED CON 5 SUBRED CON DIRECIONAMIENTO CON ENRUTAMIENTO ESTATICO Y DIRECCIONAMIENTO ESTATICO.**



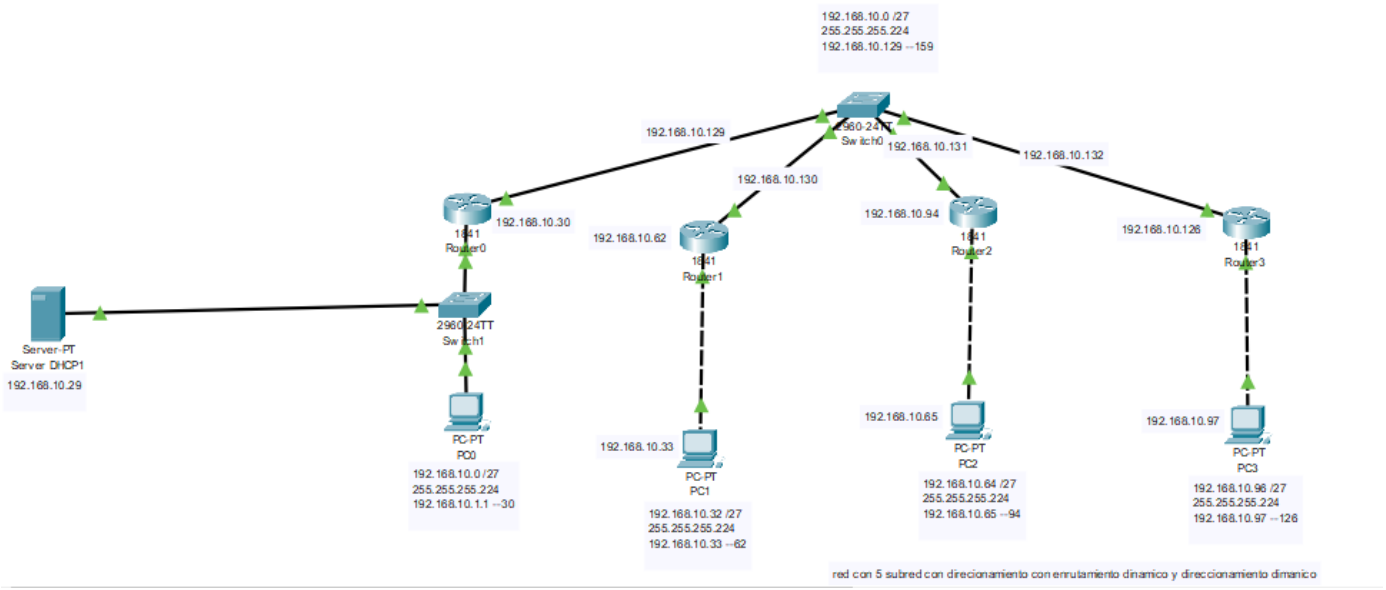


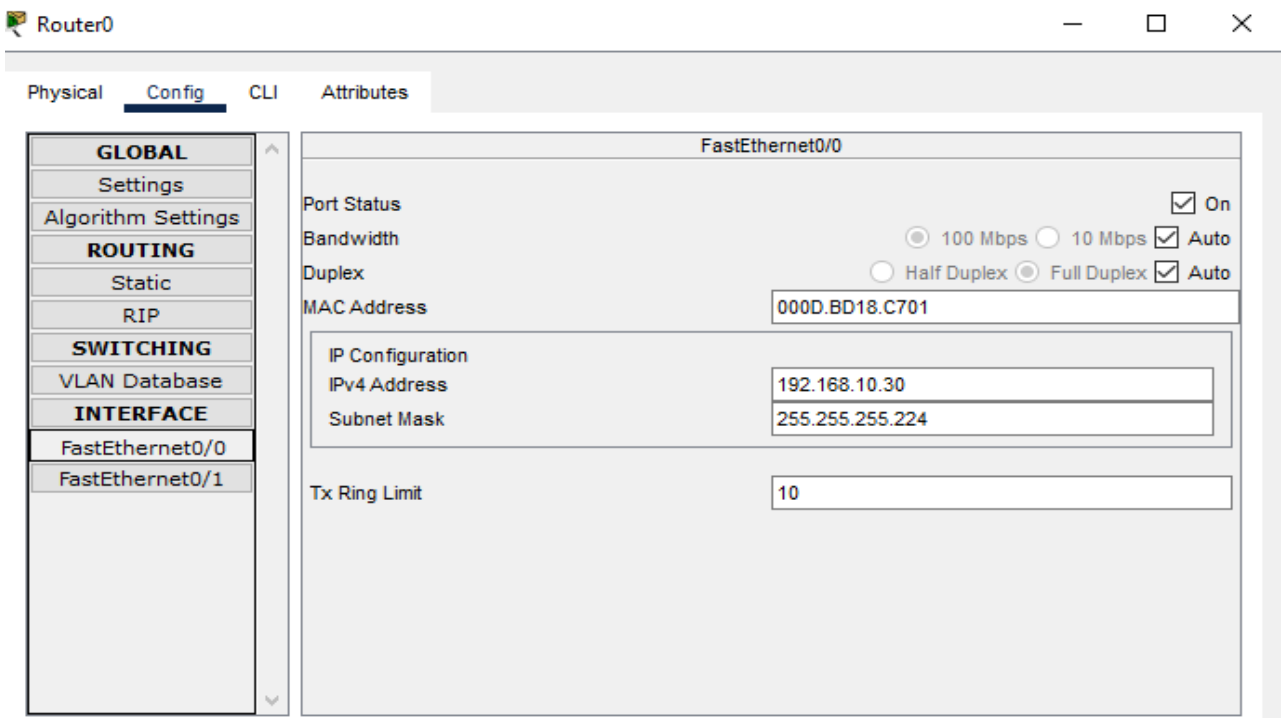


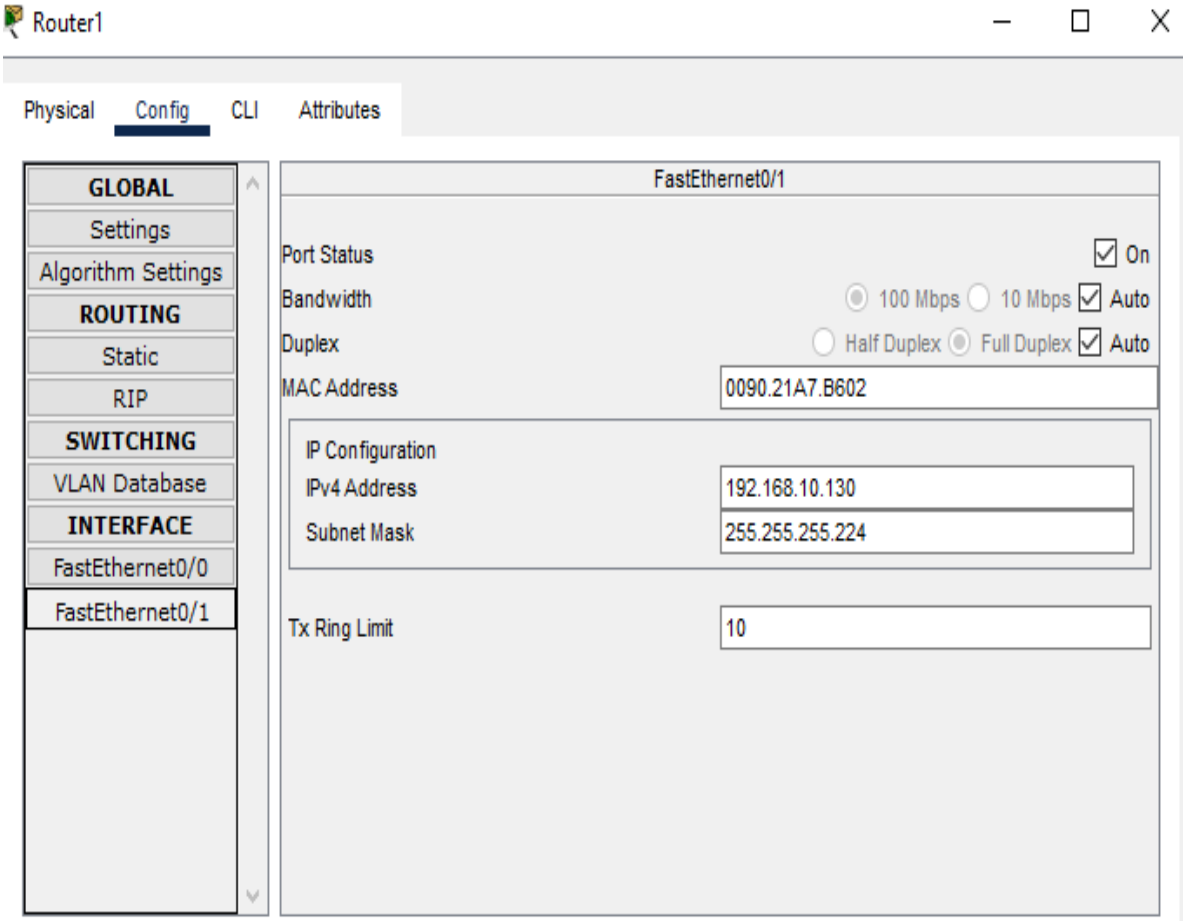
Equivalent IOS Commands

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

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


Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

PRACTICA_4RED CON 5 SUBRED CON DIRECIONAMIENTO CON ENRUTAMIENTO DINAMICO Y DIRECCIONAMIENTO DIMANICO

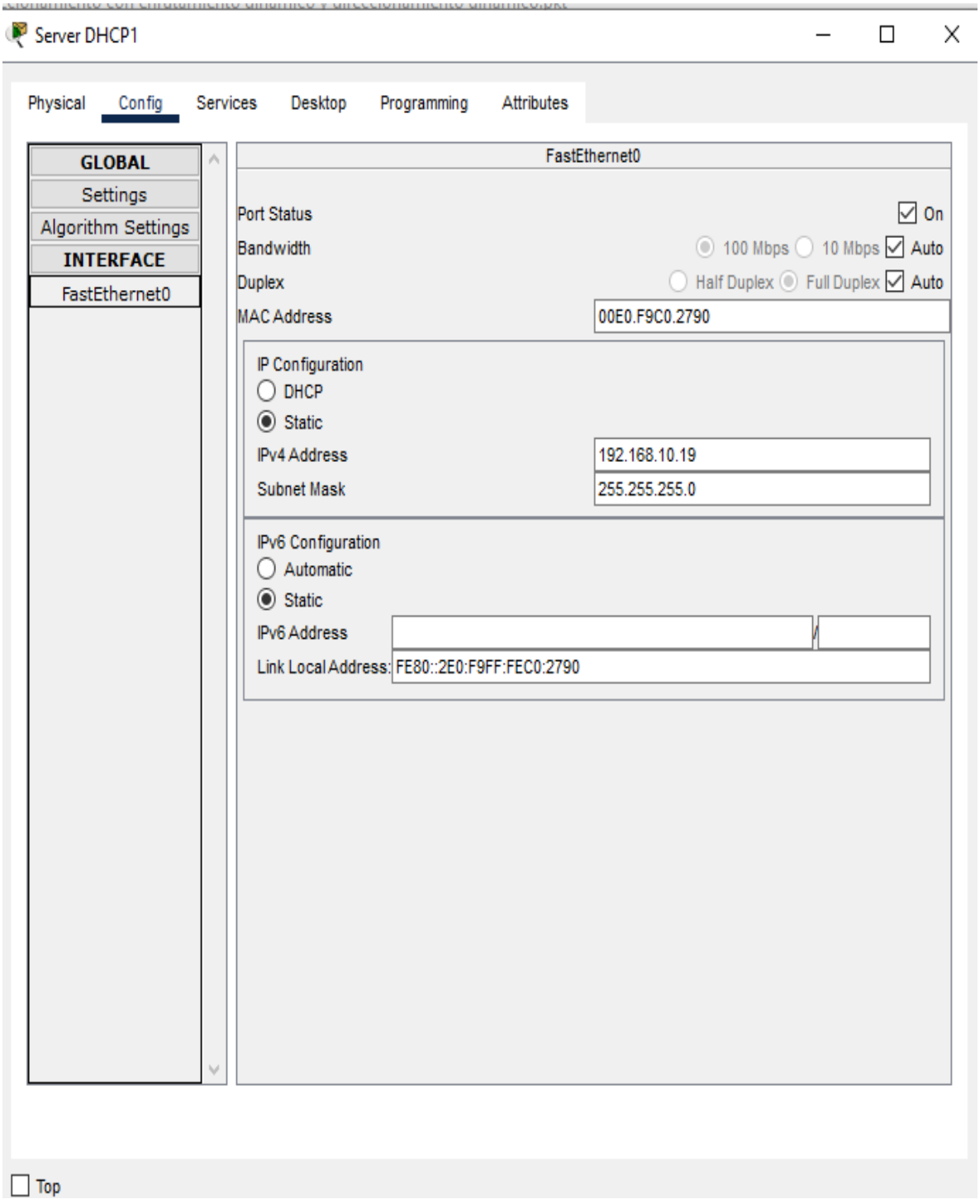




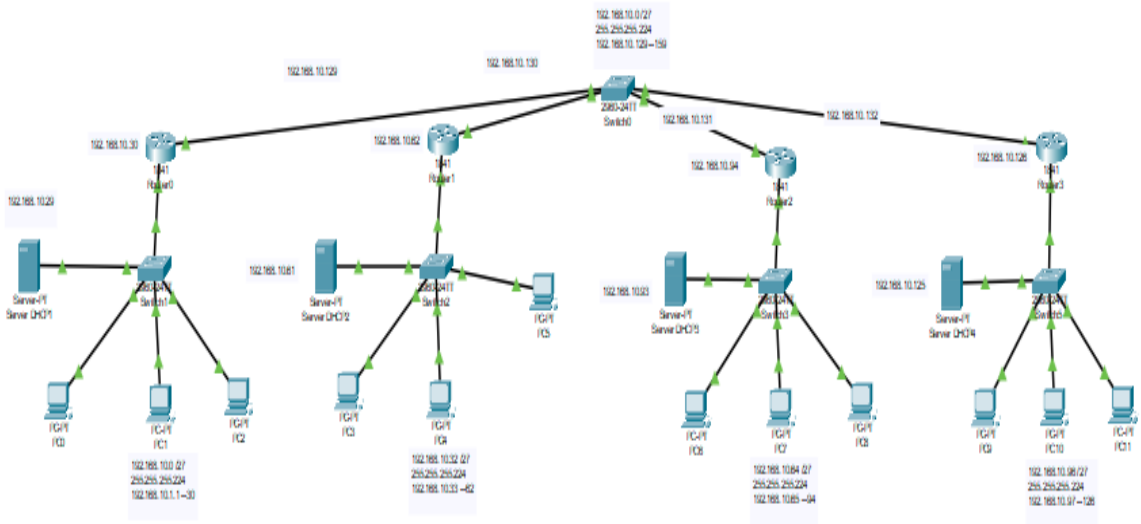


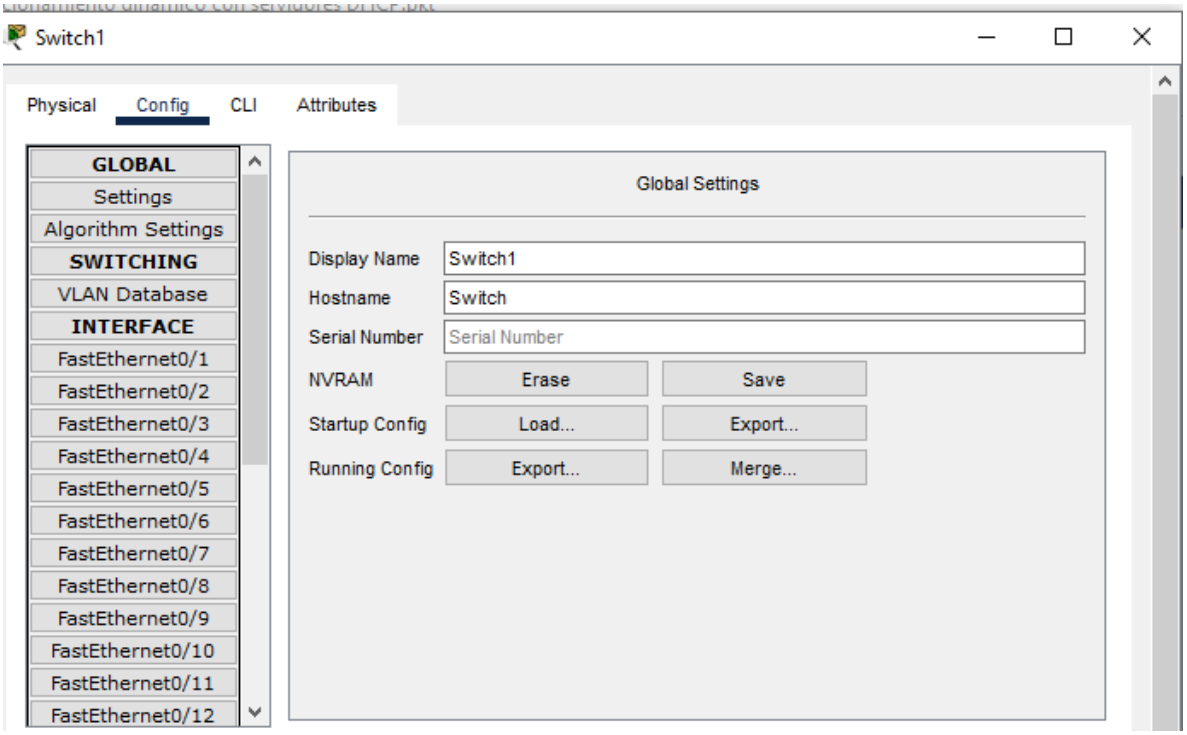
Equivalent IOS Commands

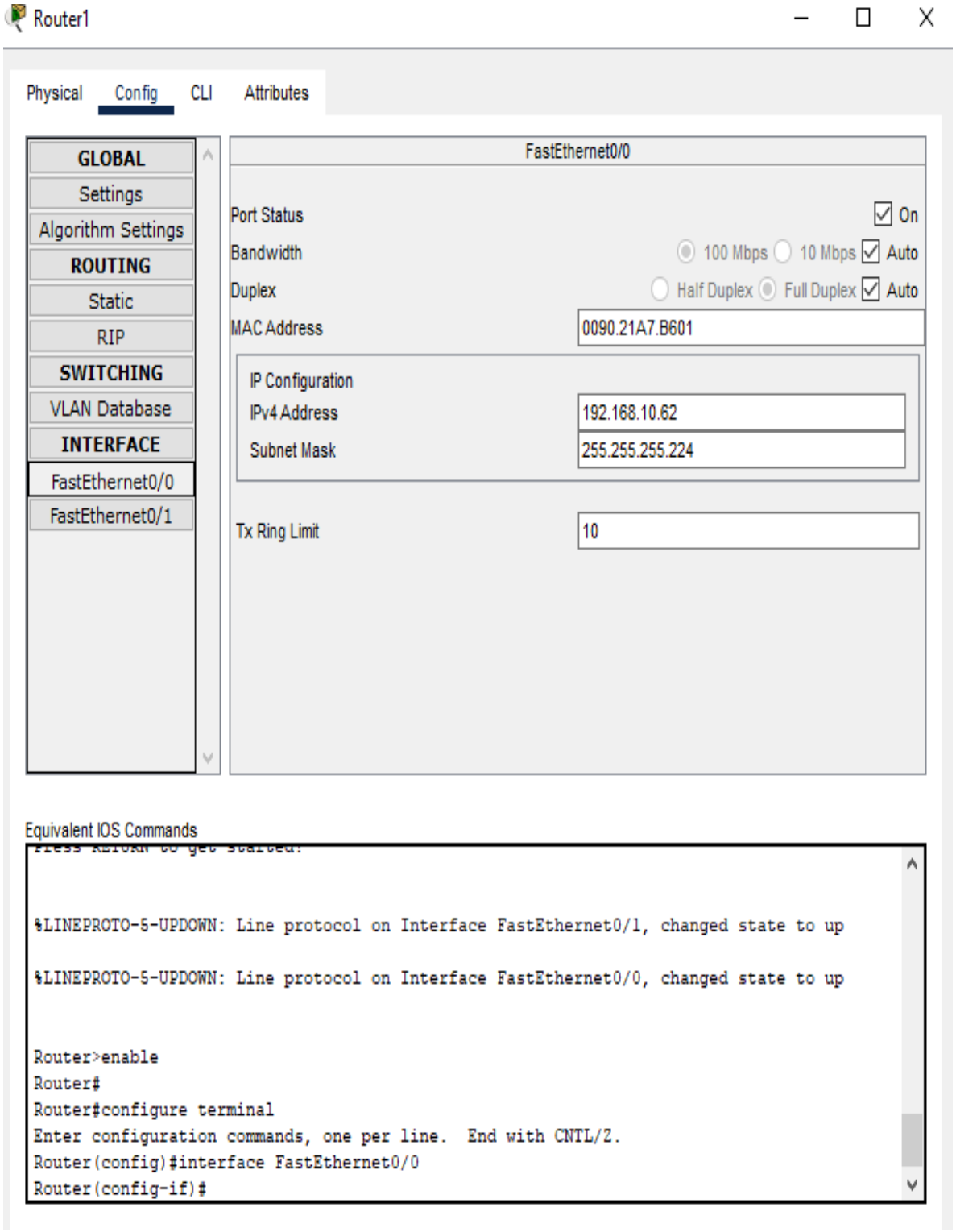
```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

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


Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface FastEthernet0/1
Router(config-if)#
```

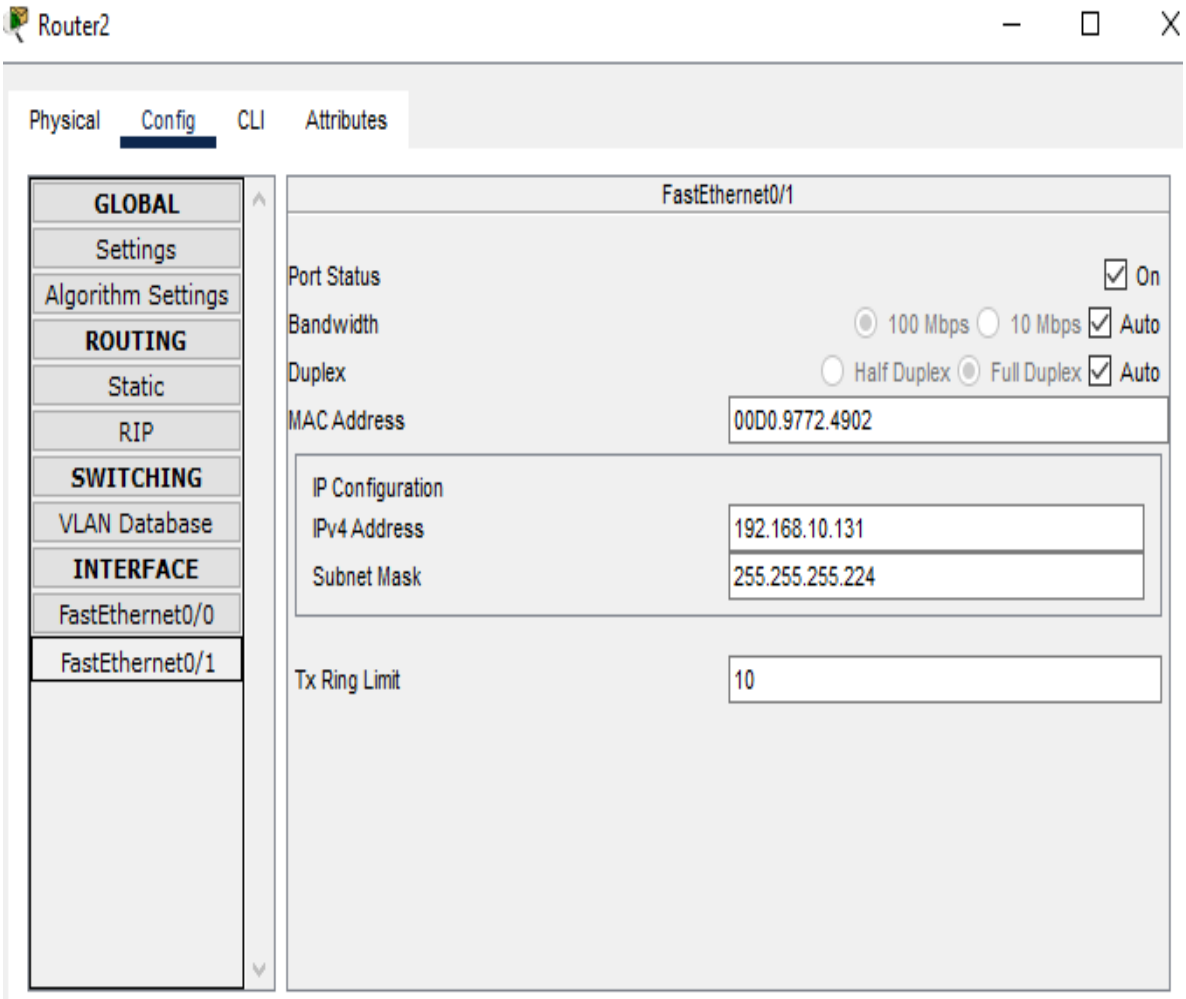

Server DHCP1
Physical
Config
Services
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
FastEthernet0
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
00E0.F9C0.2790
IP Configuration
DHCP
Static
IPv4 Address
192.168.10.19
Subnet Mask
255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address:
FE80::2E0:F9FF:FEC0:2790
Top

PRACTICA_5 RED CON 5 SUBRED CON DIRECCIONAMIENTO CON ENRUTAMIENTO DINÁMICO Y DIRECCIONAMIENTO DINÁMICO DHCP





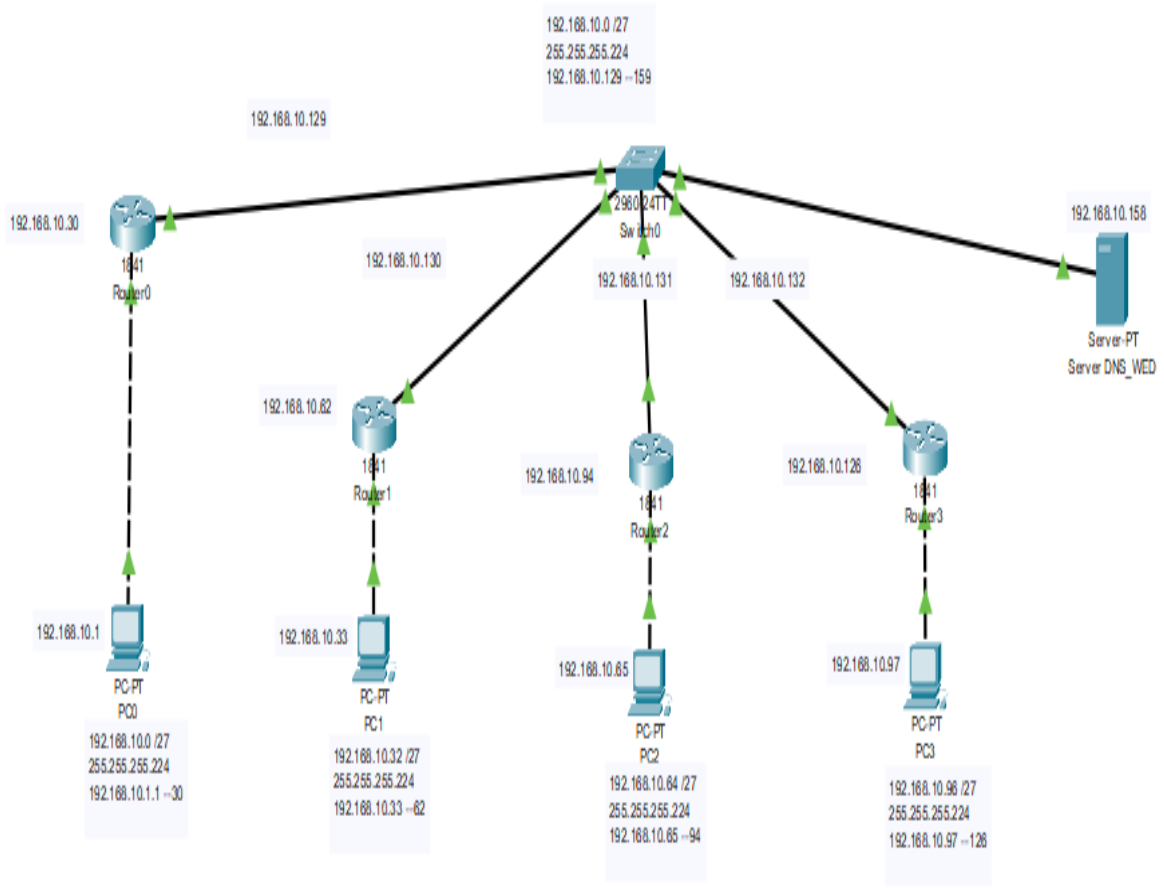

Router1
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
FastEthernet0/0
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
0090.21A7.B601
IP Configuration
IPv4 Address
192.168.10.62
Subnet Mask
255.255.255.224
Tx Ring Limit
10
Equivalent IOS Commands
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#

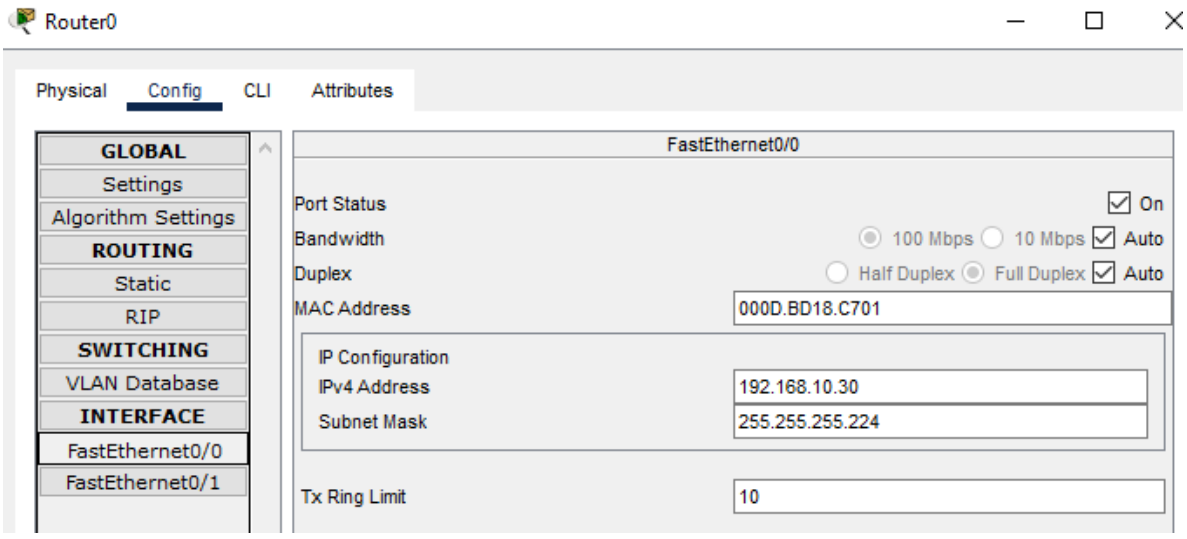


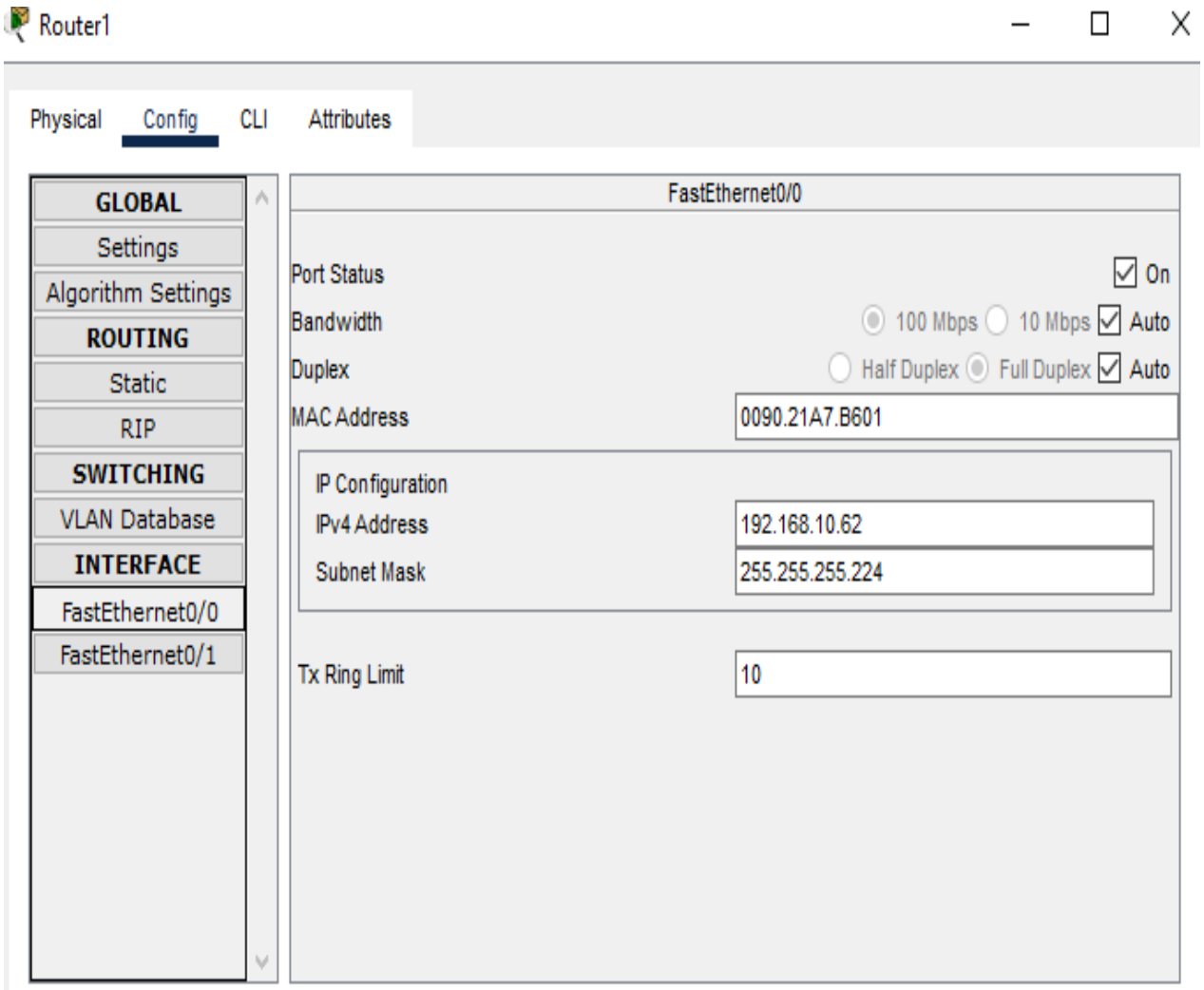
Equivalent IOS Commands

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up


Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#
```

PRACTICA_6 RED CON 5 SUBRED CON DIRECCIONAMIENTO ESTÁTICO Y ENRUTAMIENTO DINÁMICO CON SERVIDOR WEB DNS.



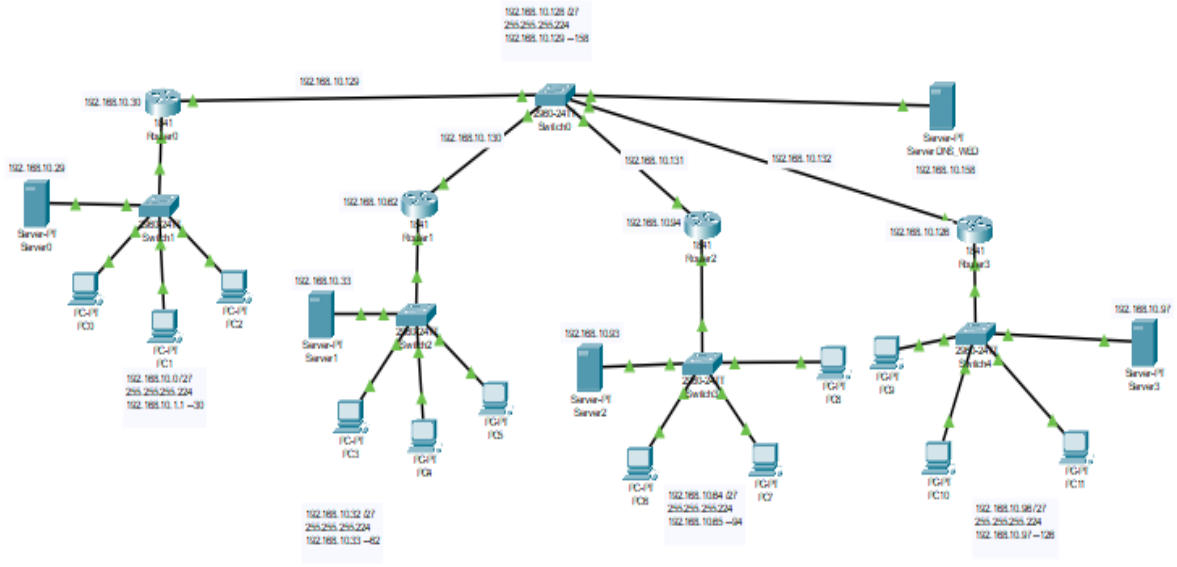


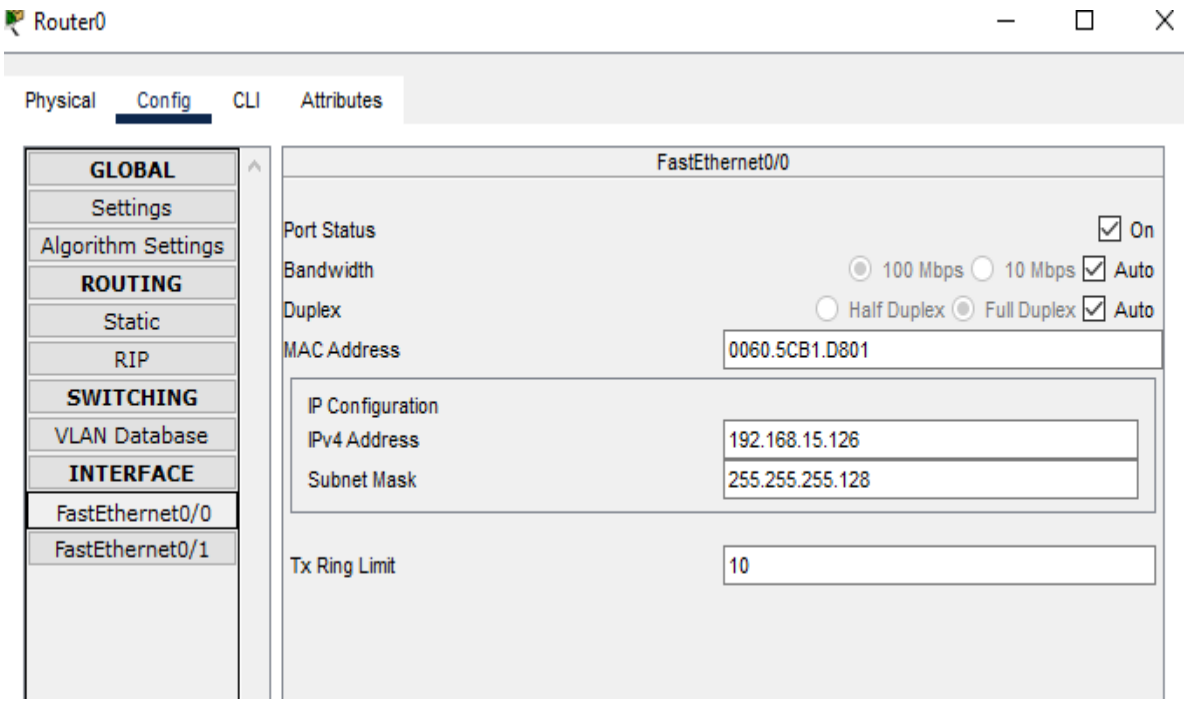


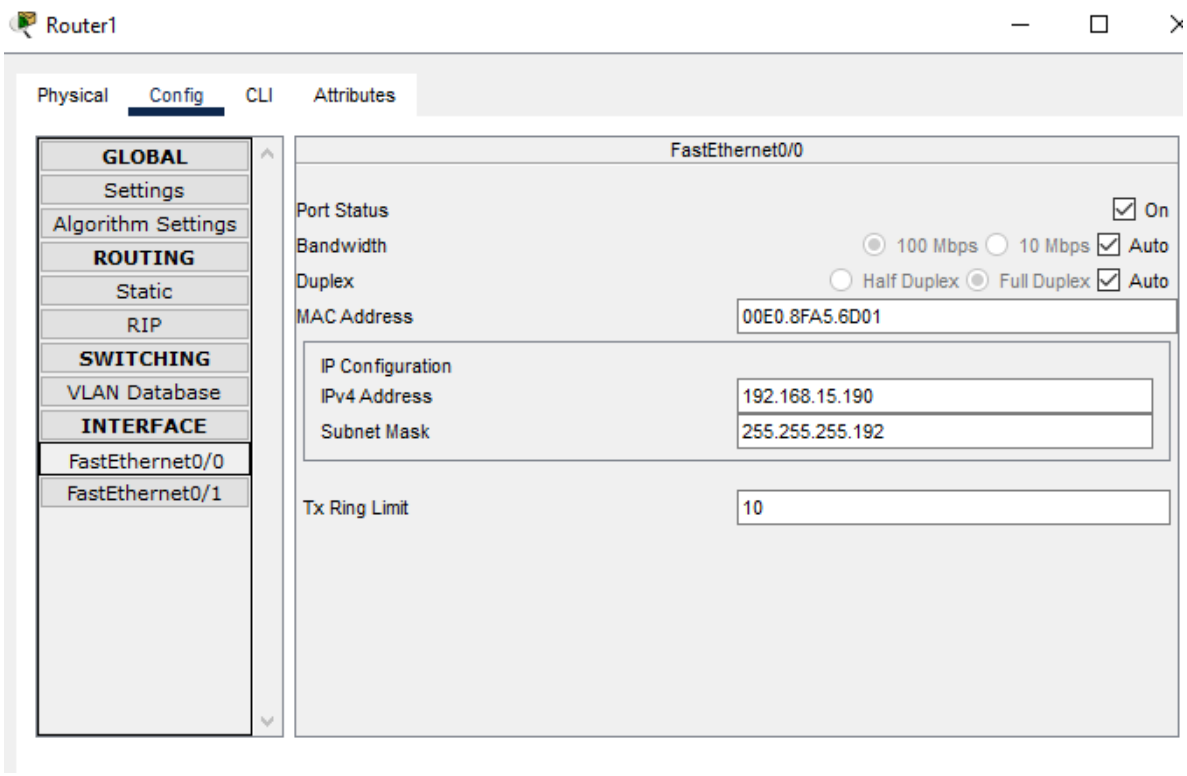
Equivalent IOS Commands

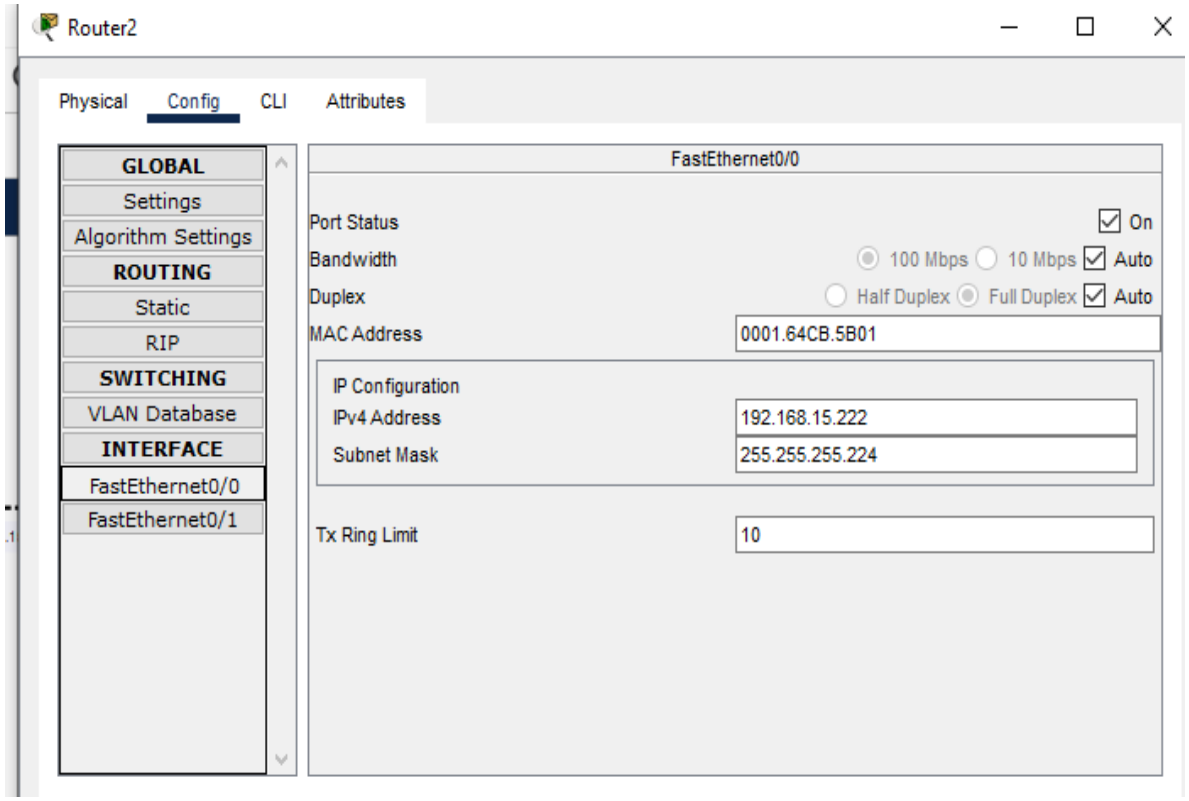
```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

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


Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

PRACTICA_7 RED CON 5 SUBRED CON DIRECIONAMIENTO DINAMICO DHCP Y ENRUTAMIENTO DINAMICO CON SERVIDOR WEB DNS.

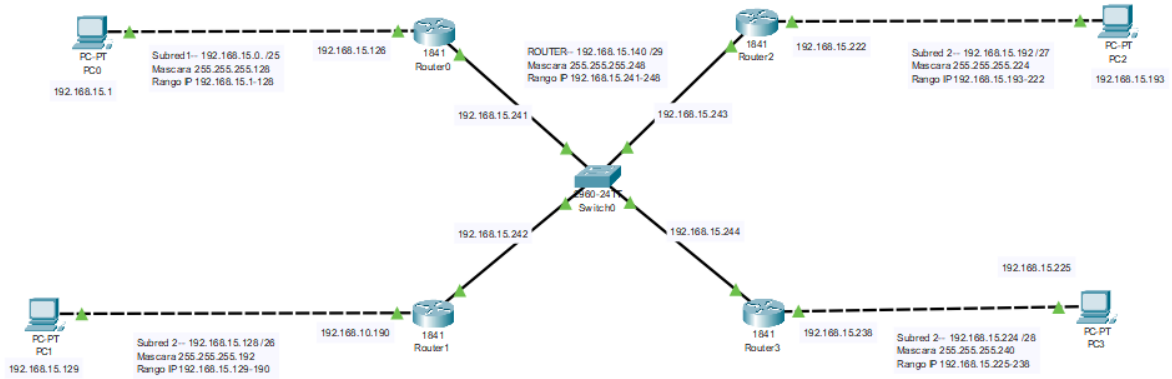


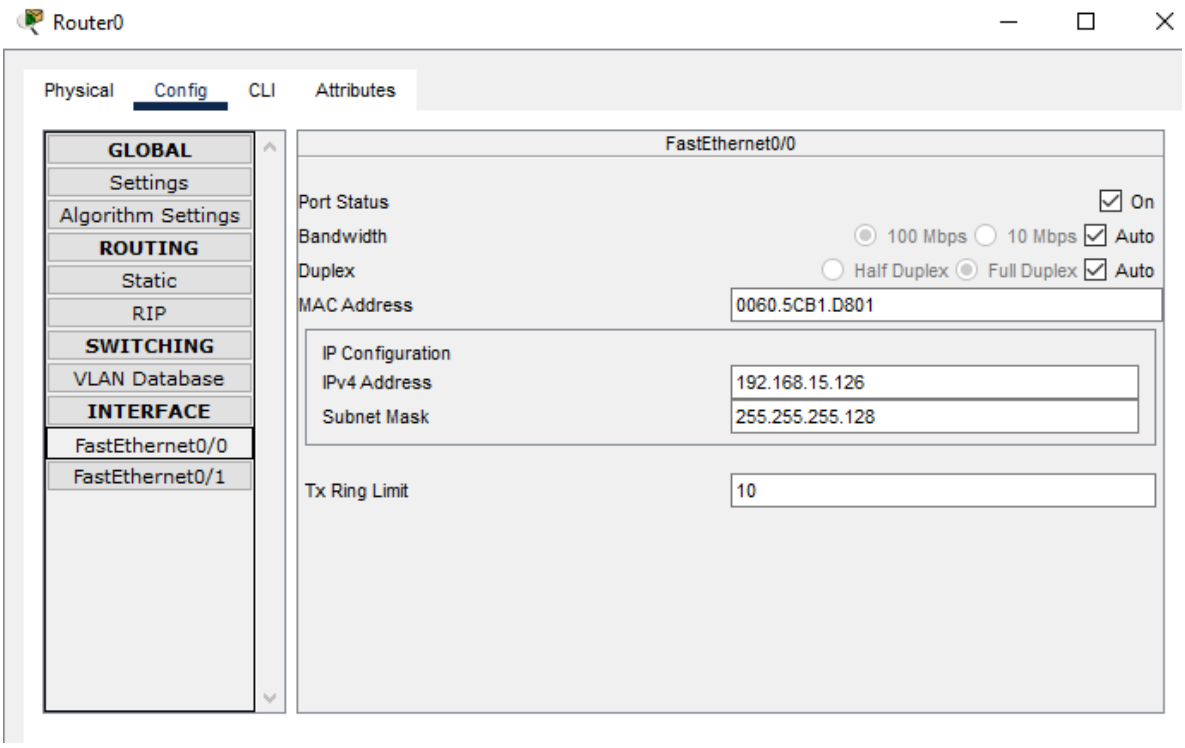


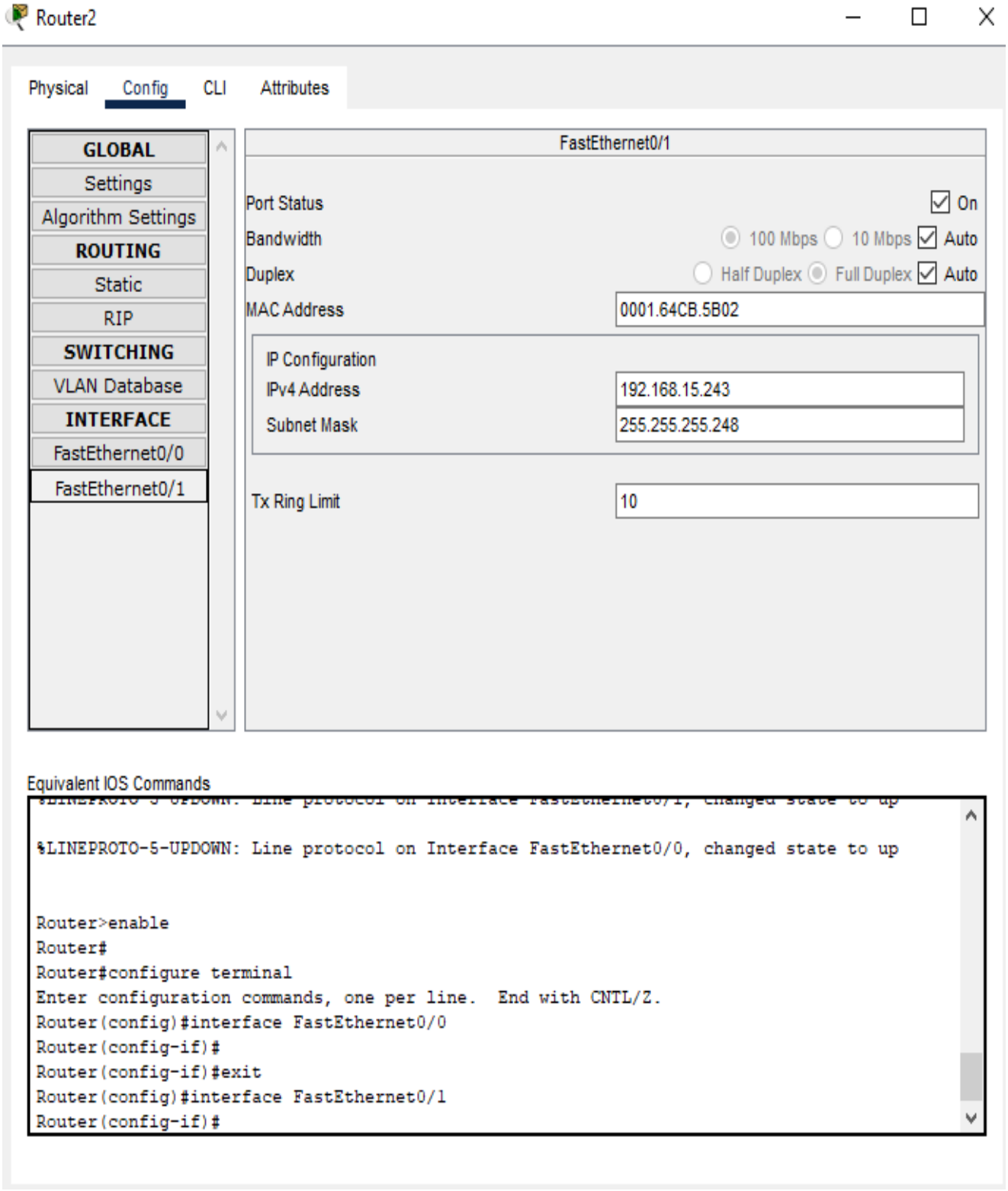

Router1
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
FastEthernet0/0
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
00E0.8FA5.6D01
IP Configuration
IPv4 Address
192.168.15.190
Subnet Mask
255.255.255.192
Tx Ring Limit
10


Router2
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
FastEthernet0/0
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
0001.64CB.5B01
IP Configuration
IPv4 Address
192.168.15.222
Subnet Mask
255.255.255.224
Tx Ring Limit
10

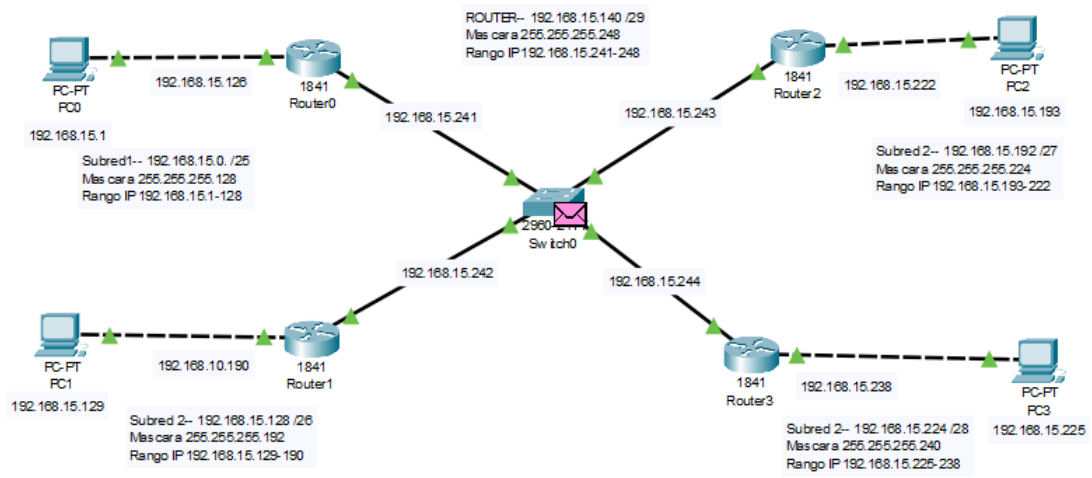
PRACTICA_8 RED CON 5 SUBREDES CON VLMS Y DIRECIONAMIENTO ESTATICO.

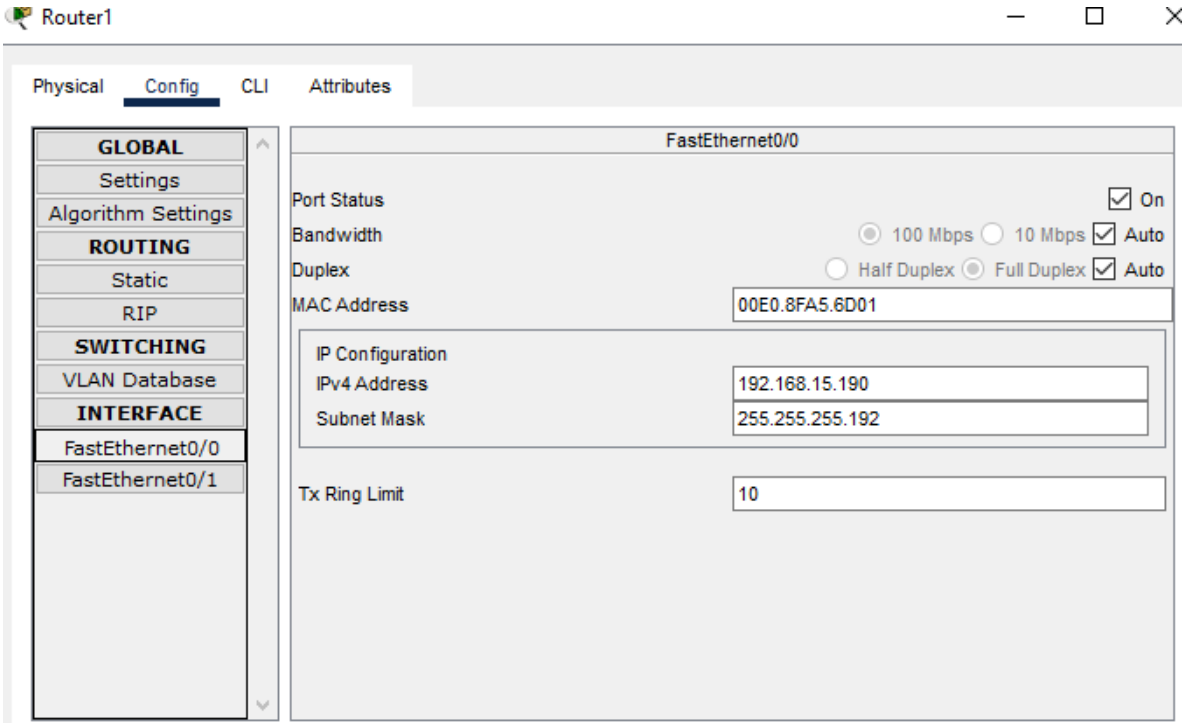


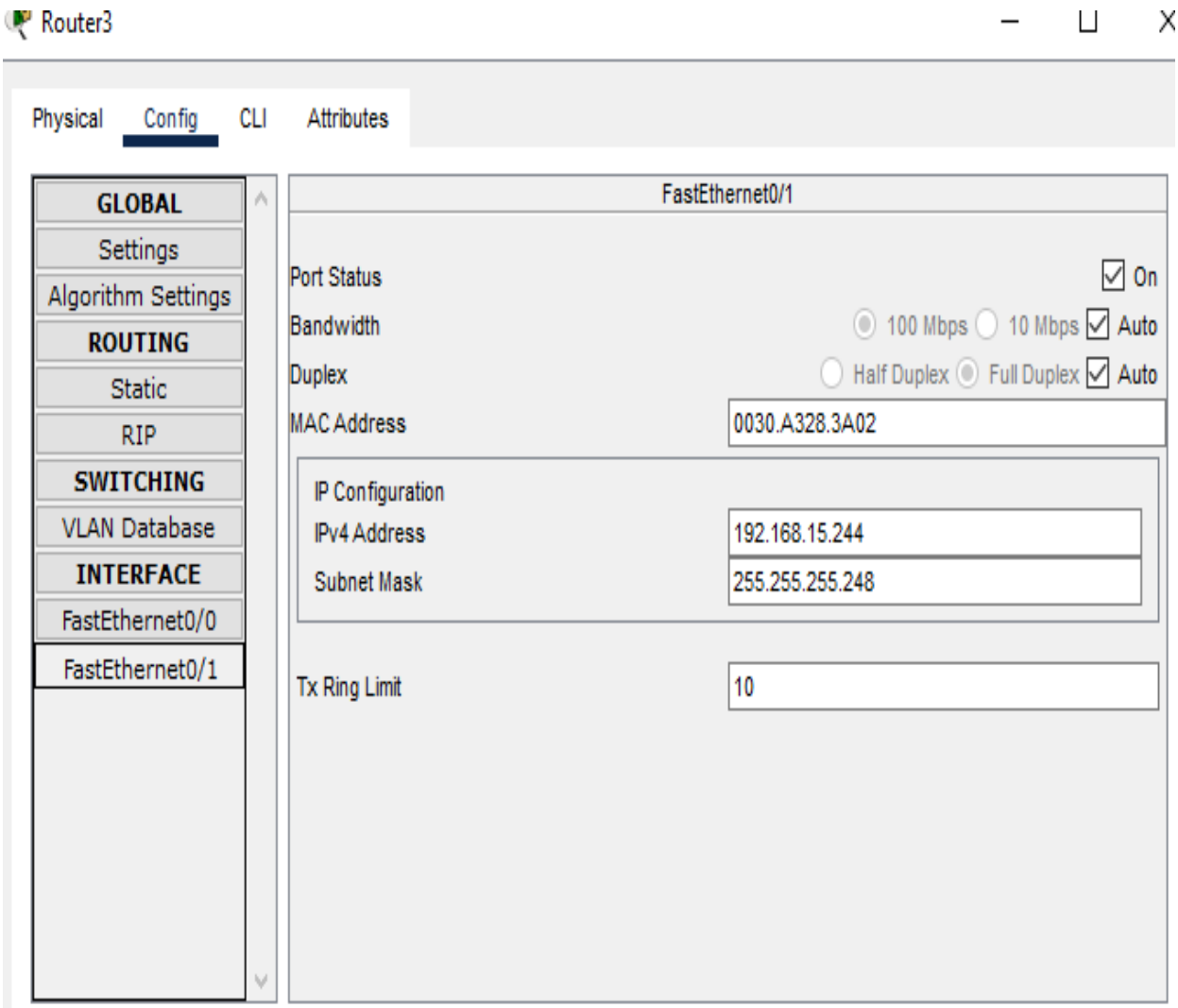



Router2
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
FastEthernet0/1
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
0001.64CB.5B02
IP Configuration
IPv4 Address
192.168.15.243
Subnet Mask
255.255.255.248
Tx Ring Limit
10
Equivalent IOS Commands
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#

PRACTICA_9 RED CON 5 SUBREDES CON VLMS Y DIRECCIONAMIENTO DINÁMICO.



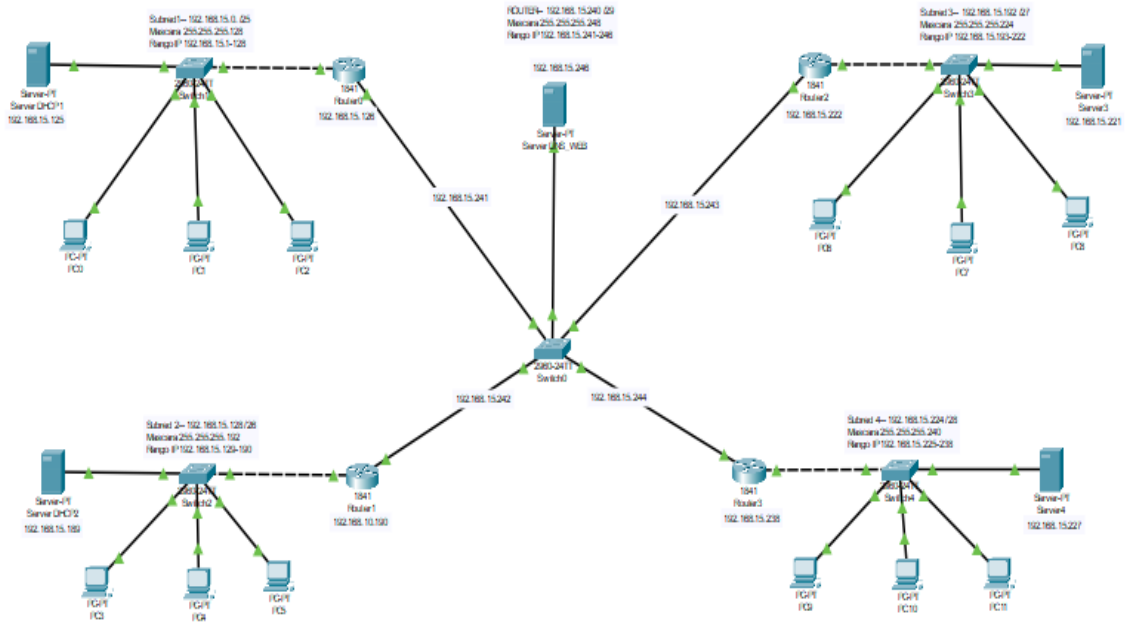


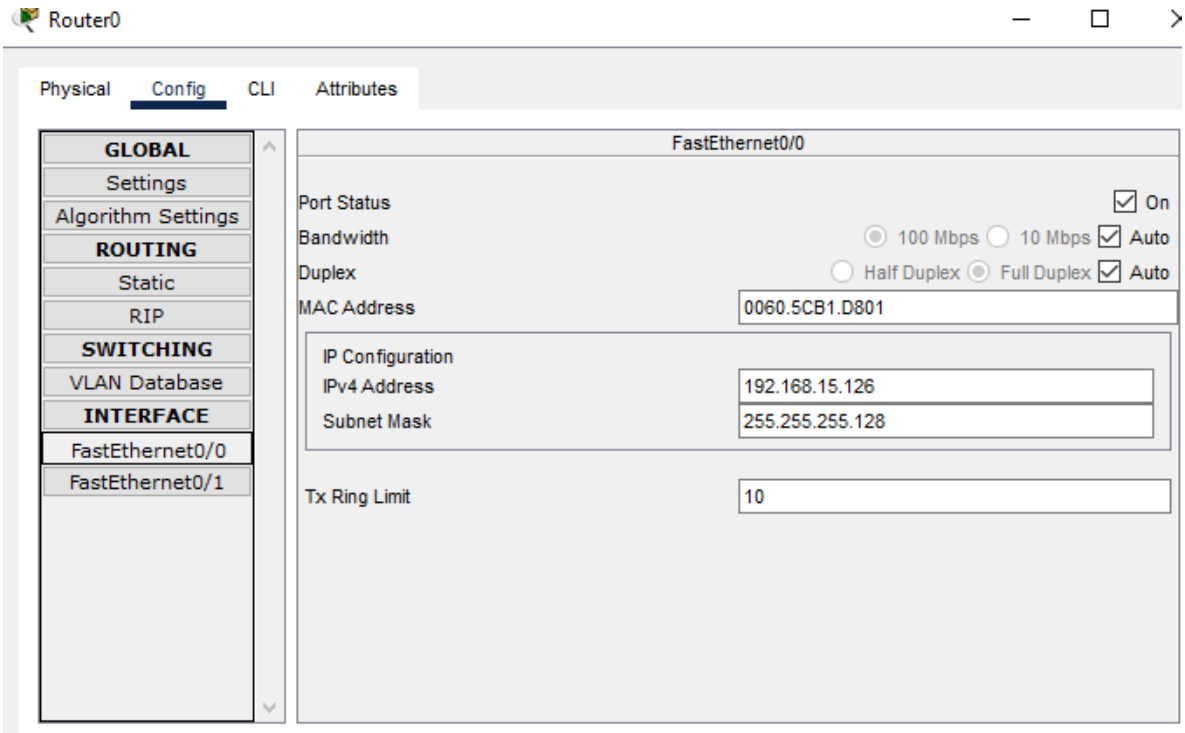


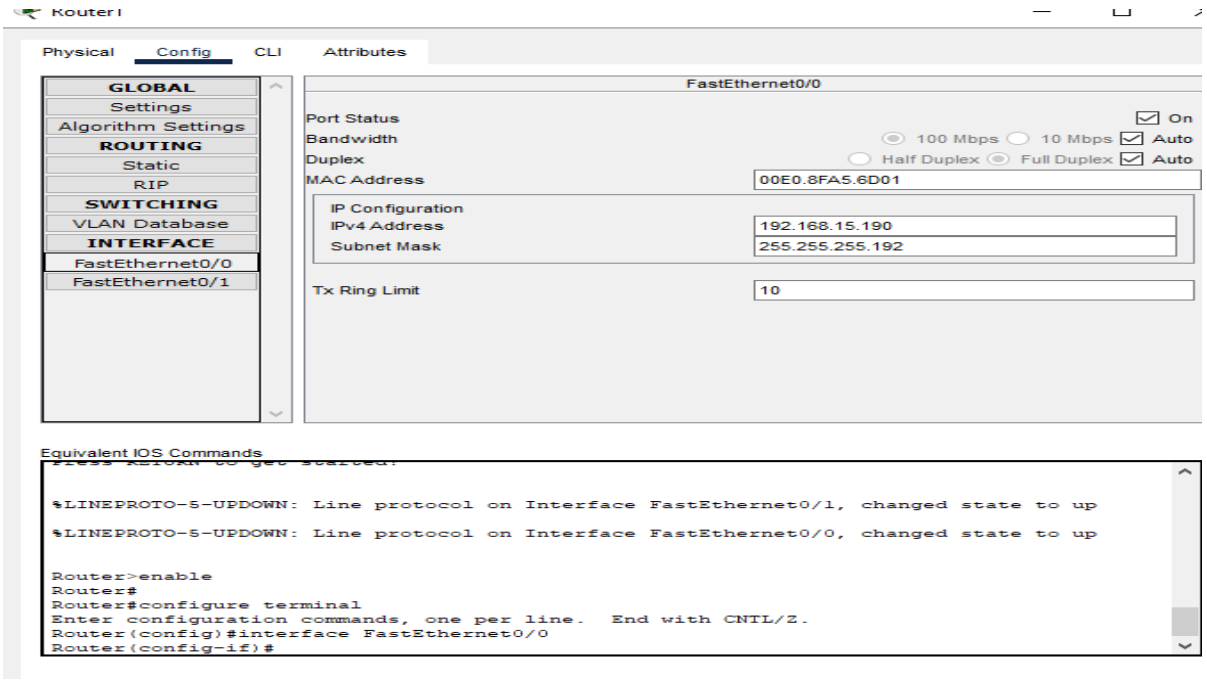
Equivalent IOS Commands

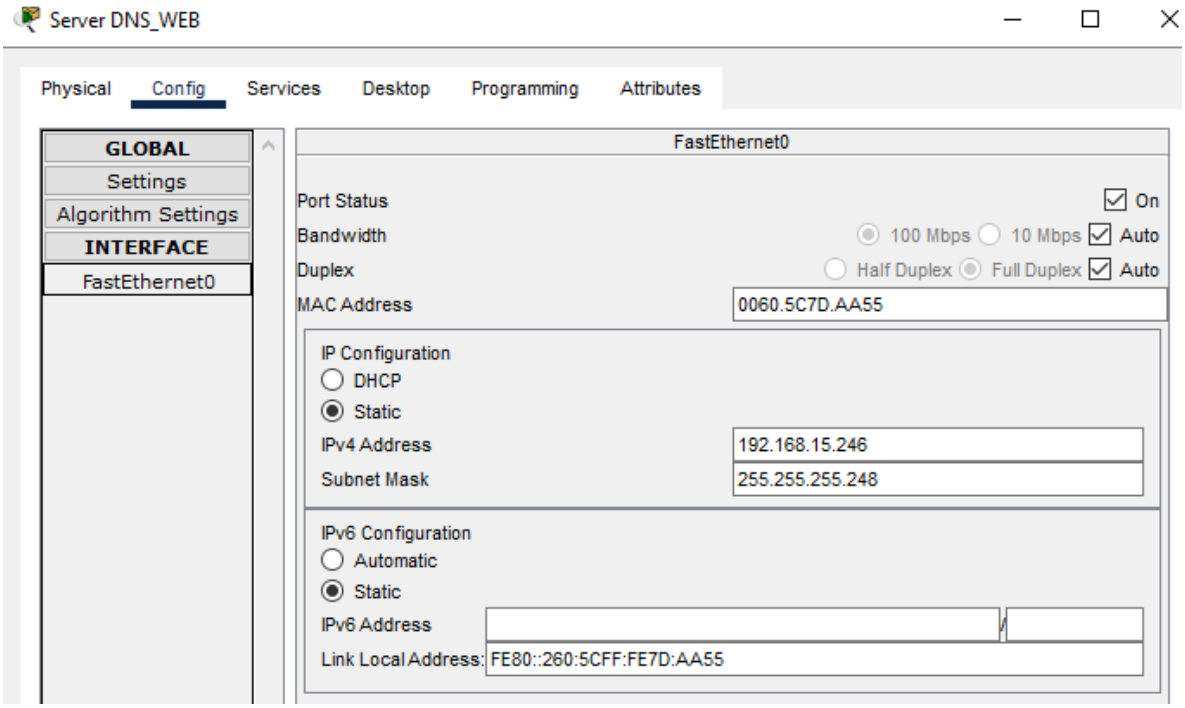
```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up


Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface FastEthernet0/1
Router(config-if)#
```

PRACTICA_10 RED CON 5 SUBREDES CON VLMS Y DIRECCIONAMIENTO DINÁMICO.

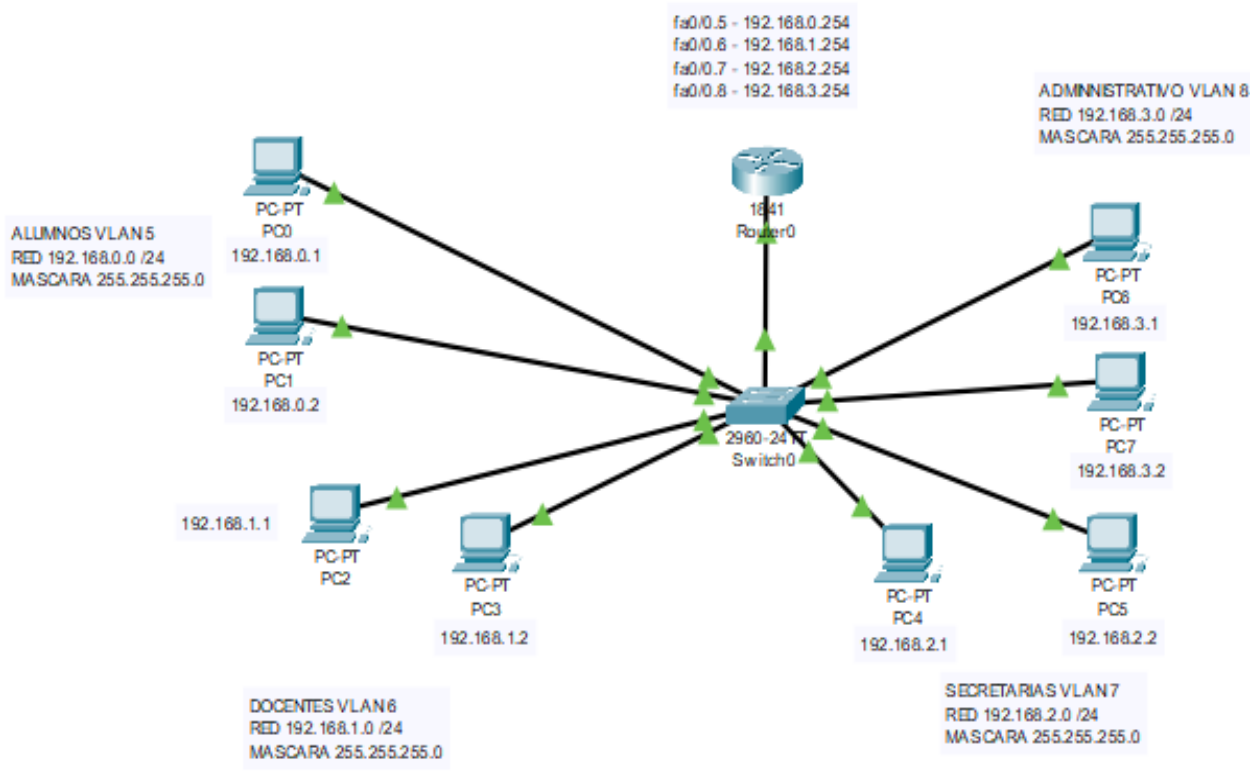


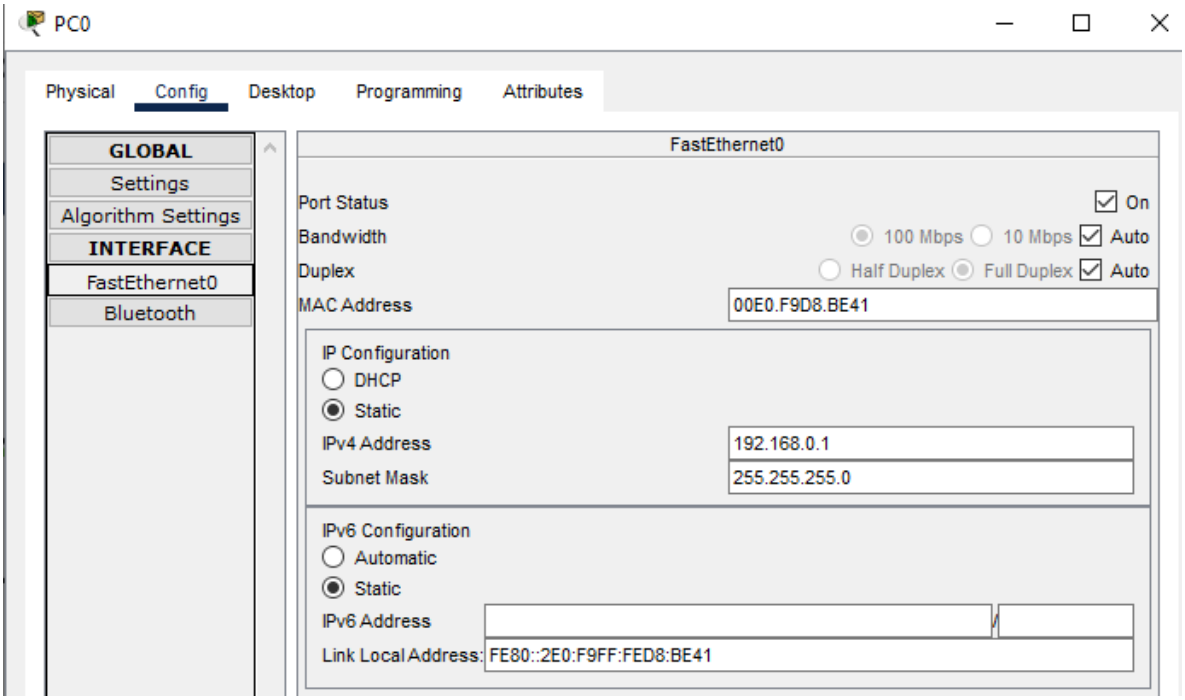



Router1
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
FastEthernet0/0
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
00E0.8FA5.6D01
IP Configuration
IPv4 Address
192.168.15.190
Subnet Mask
255.255.255.192
Tx Ring Limit
10
Equivalent IOS Commands
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#

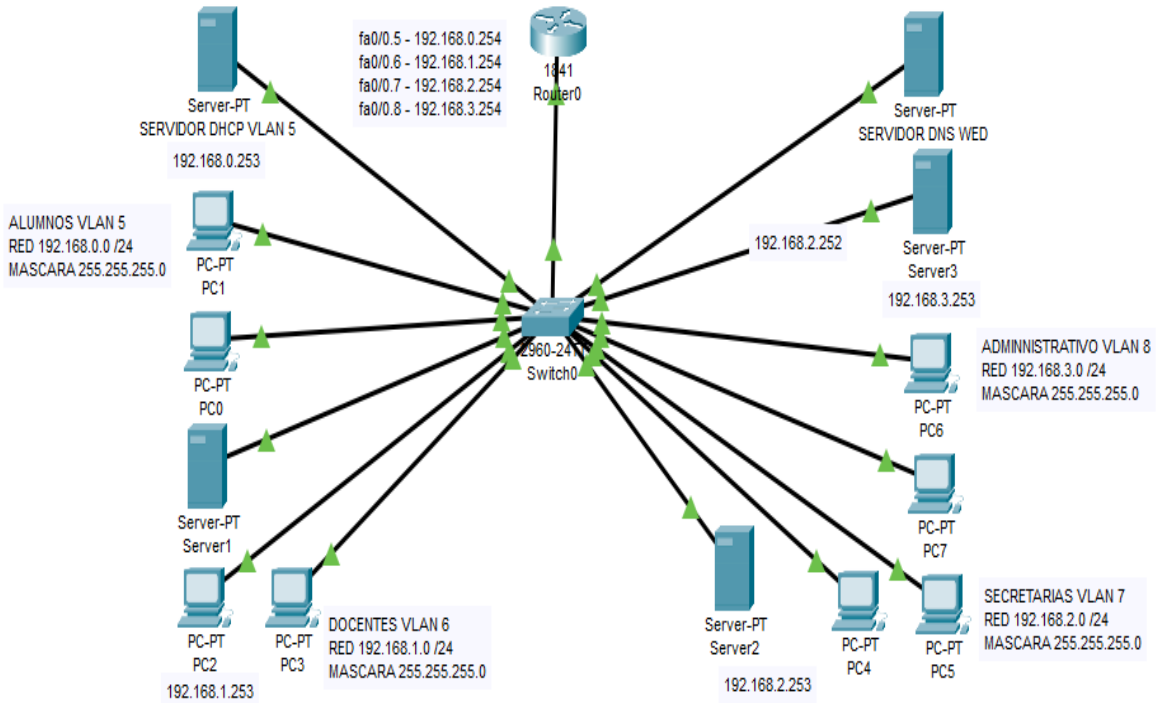

Server DNS_WEB
Physical
Config
Services
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
FastEthernet0
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
0060.5C7D.AA55
IP Configuration
DHCP
Static
IPv4 Address
192.168.15.246
Subnet Mask
255.255.255.248
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address:
FE80::260:5CFF:FE7D:AA55

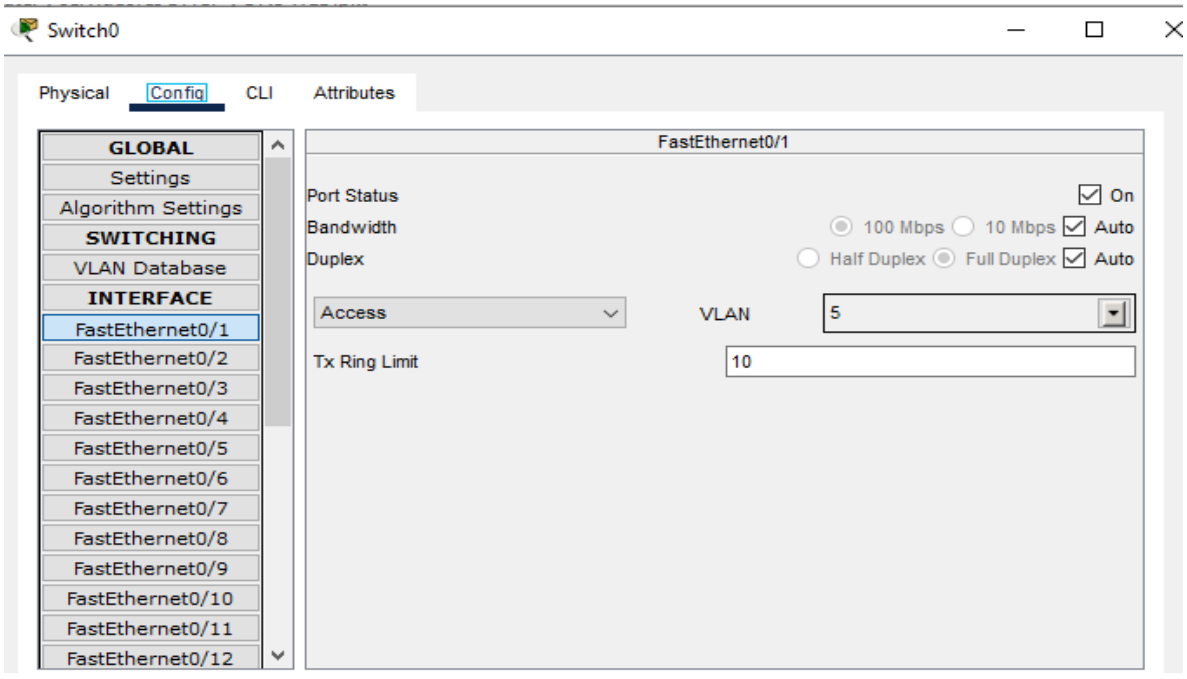
PRACTICA_11 RED CON 4 VLAN Y UN ROUTER.

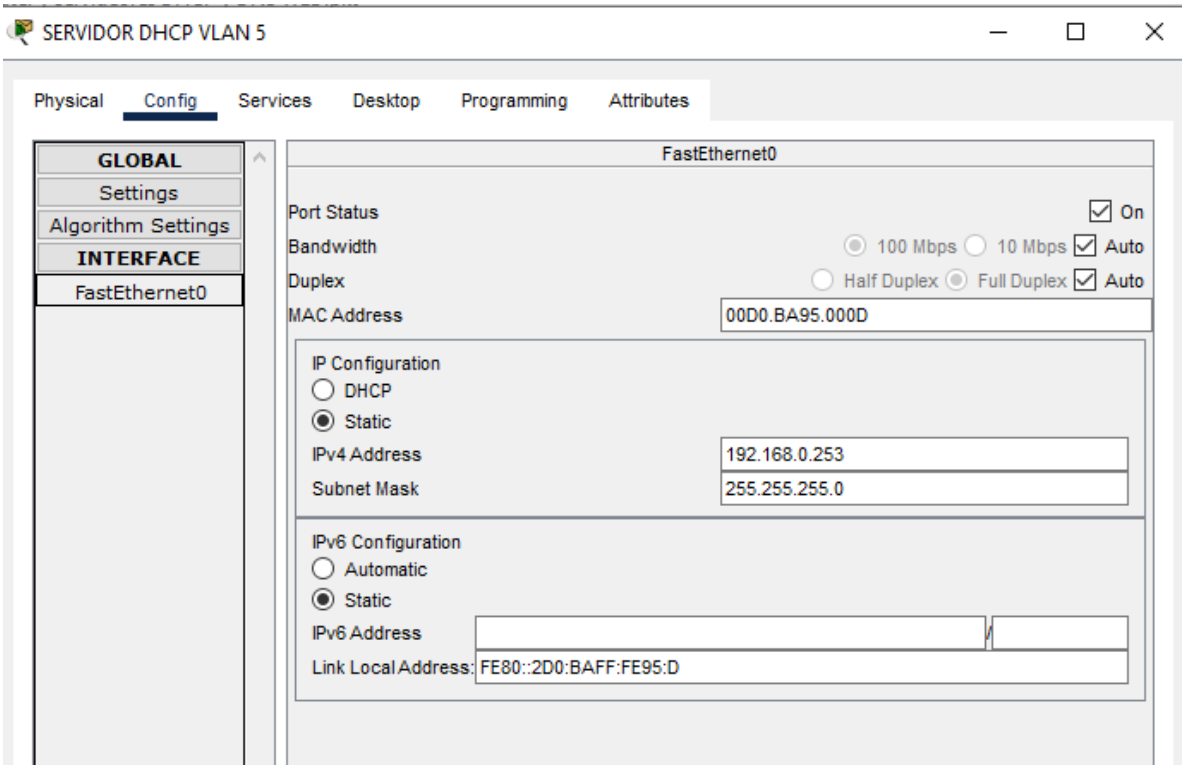




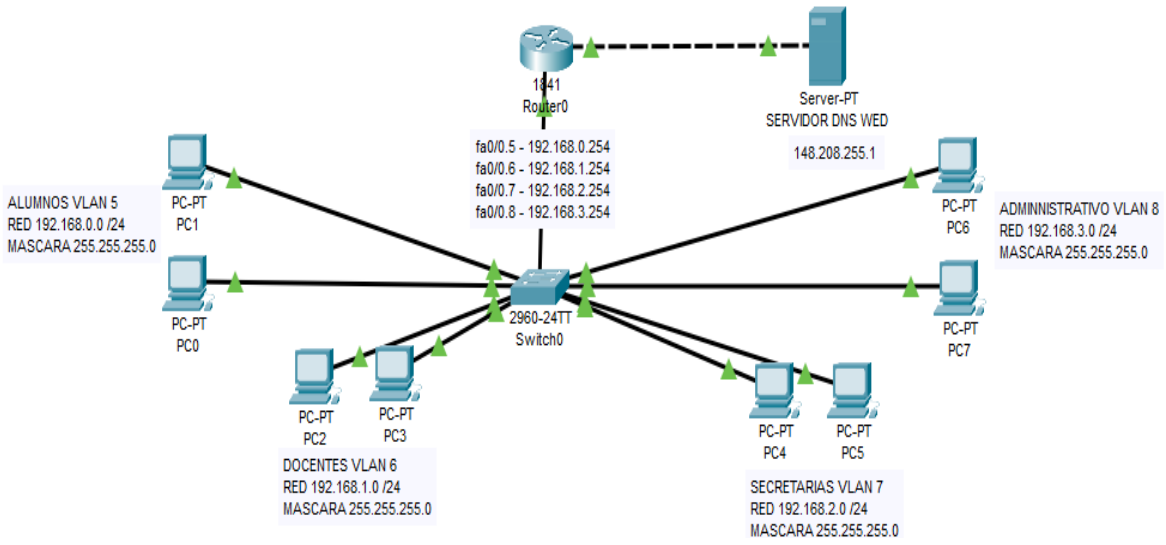
PRACTICA_12 RED CON 4 VLAN Y UN ROUTER Y SERVIDEORES DHCP Y DNS WED.

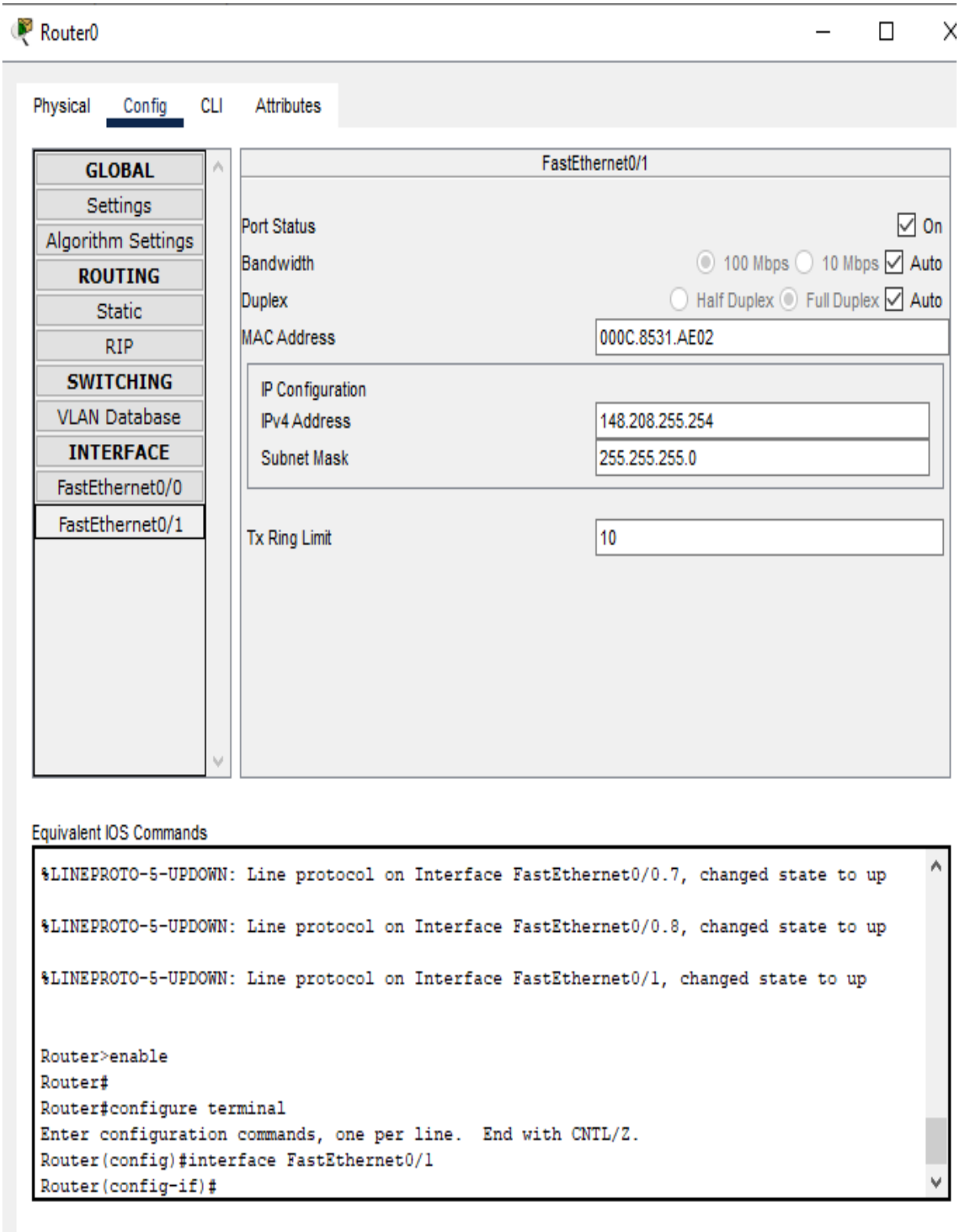




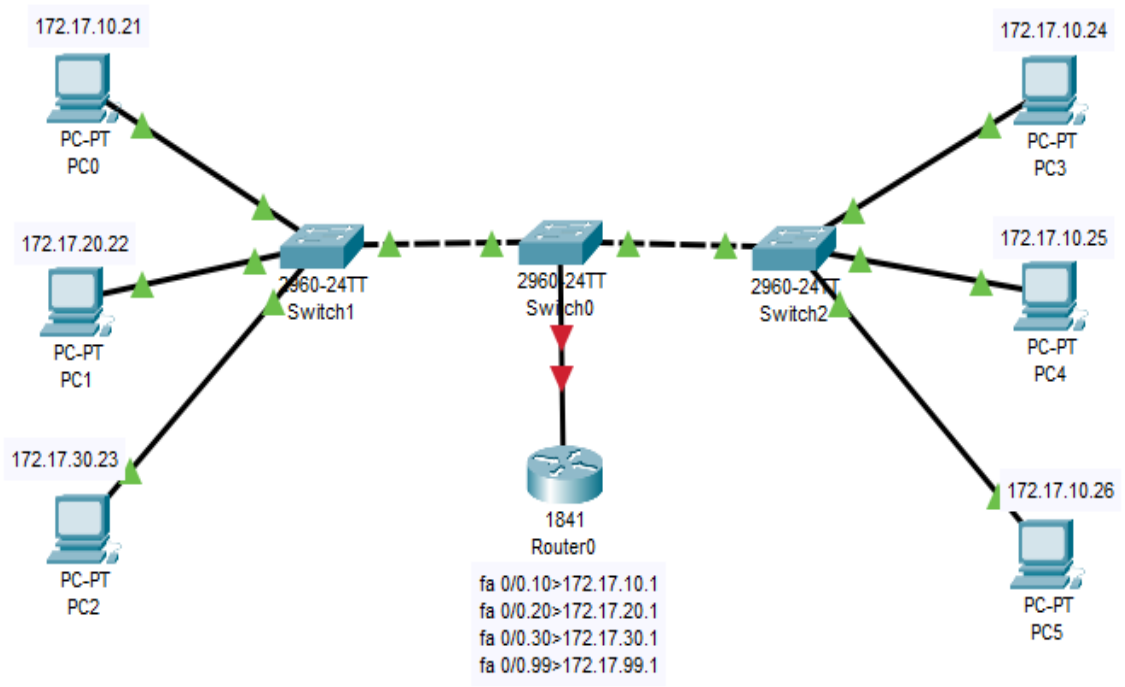


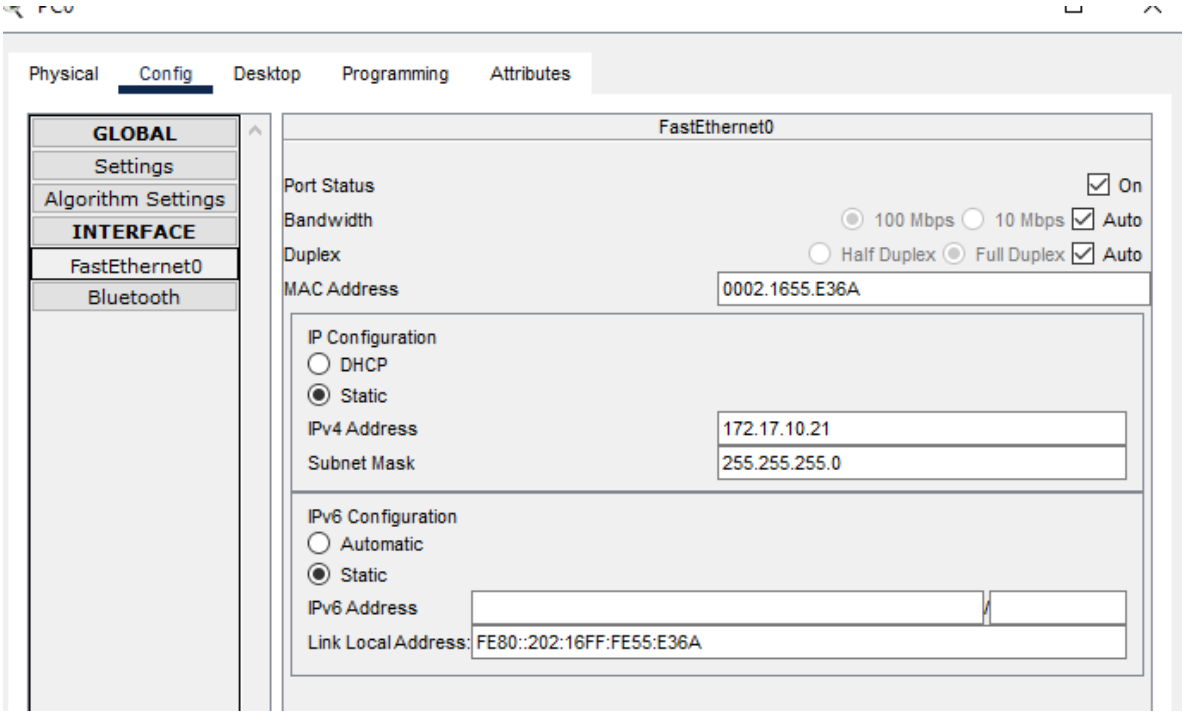
PRACTICA_13 RED CON 4 VLAN Y UN ROUTER Y SERVIDEORES DHCP Y DNS WED.

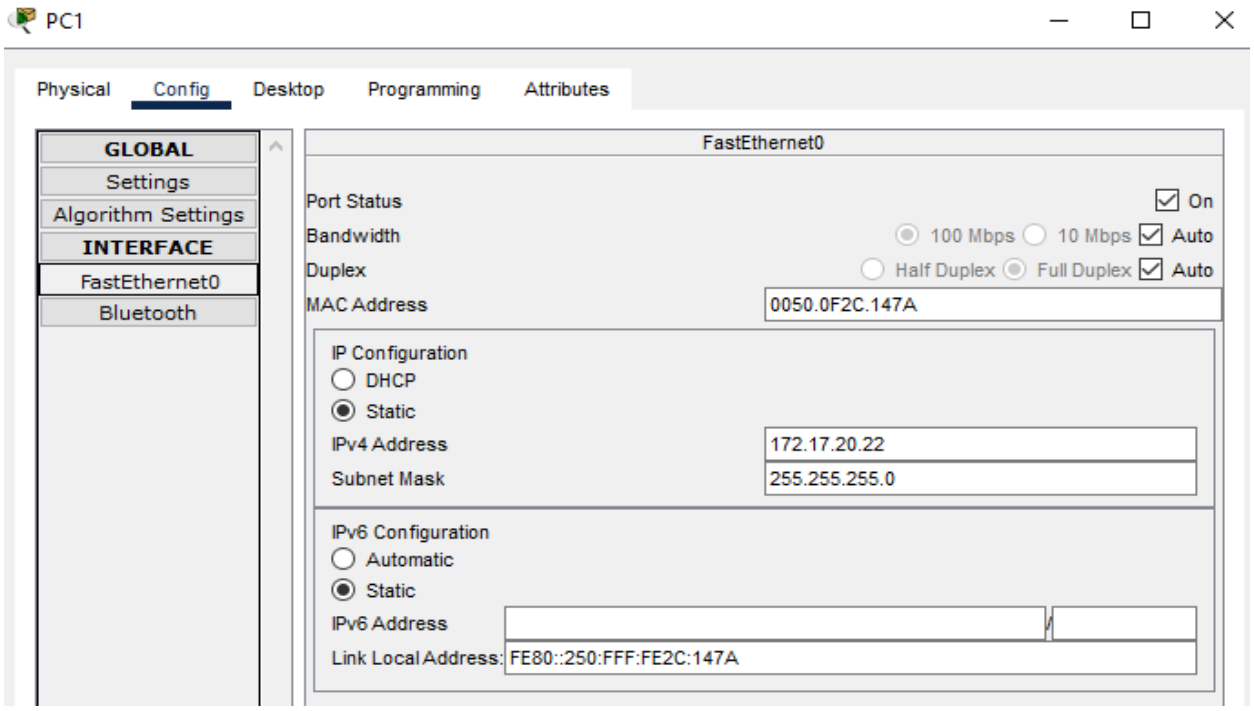


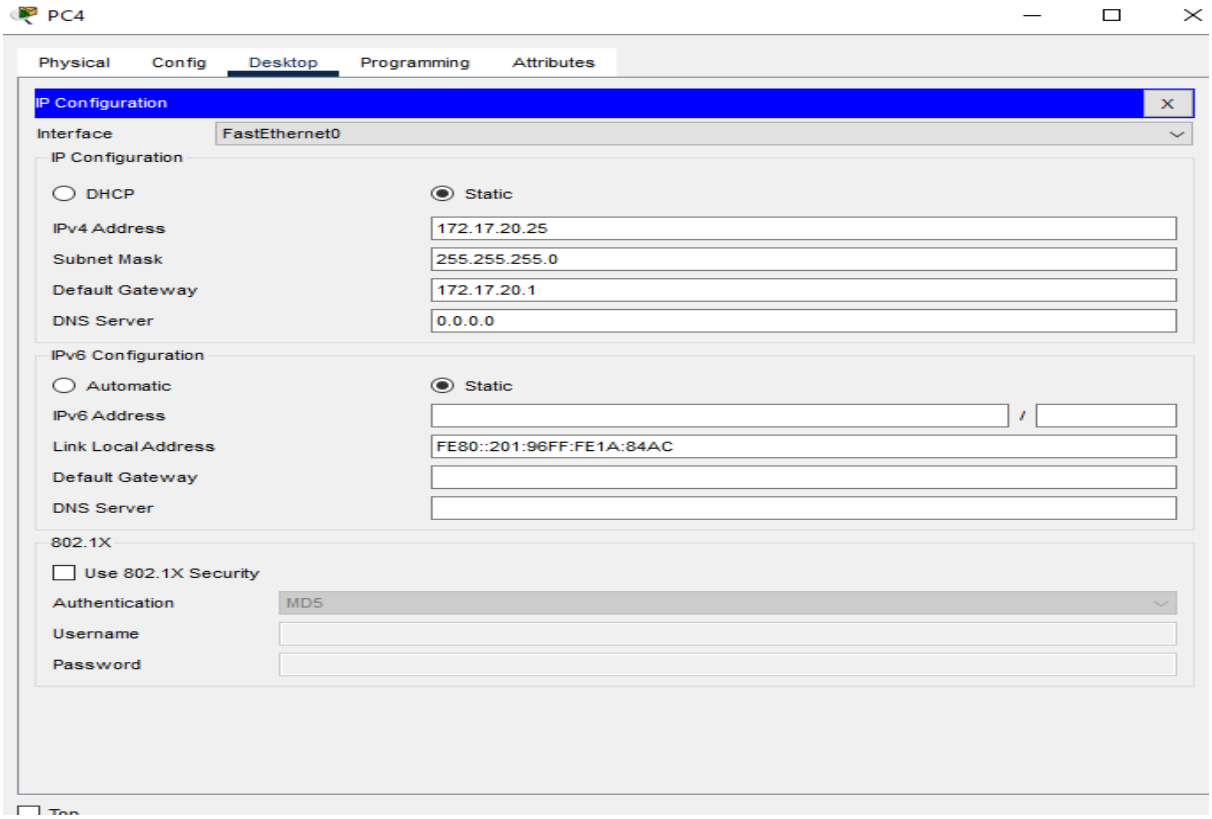

Router0
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
FastEthernet0/1
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
000C.8531.AE02
IP Configuration
IPv4 Address
148.208.255.254
Subnet Mask
255.255.255.0
Tx Ring Limit
10
Equivalent IOS Commands
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.7, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.8, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/1
Router(config-if)#

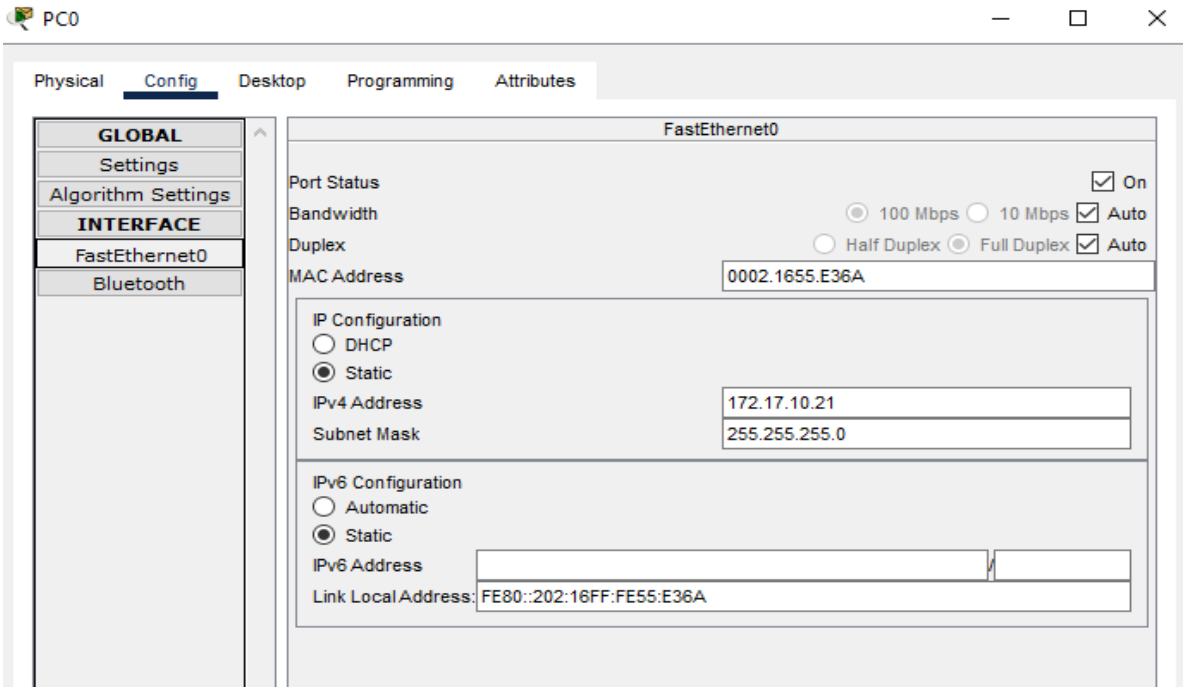
PRACTICA_14 RED CON TRES VLANS Y ENLACES TRONCALES.



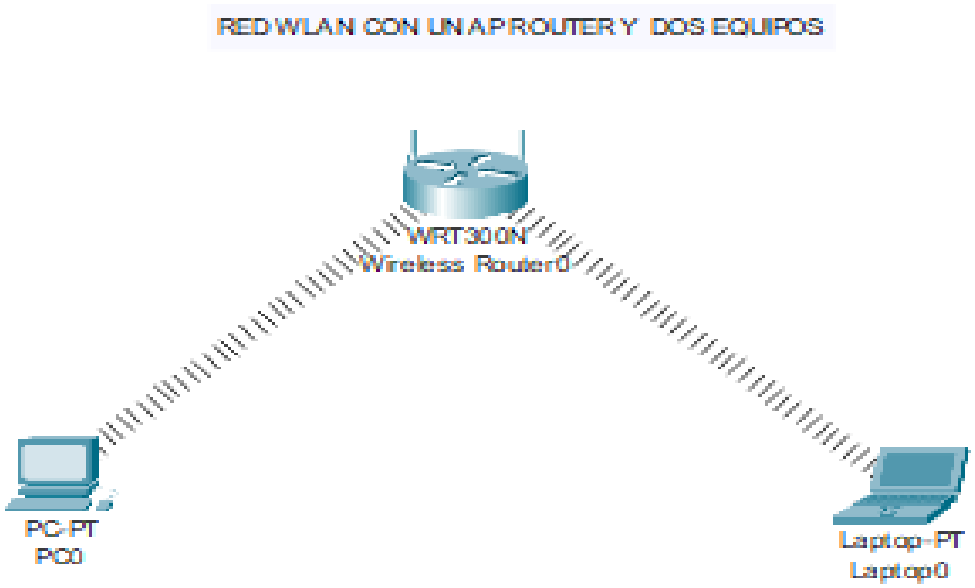


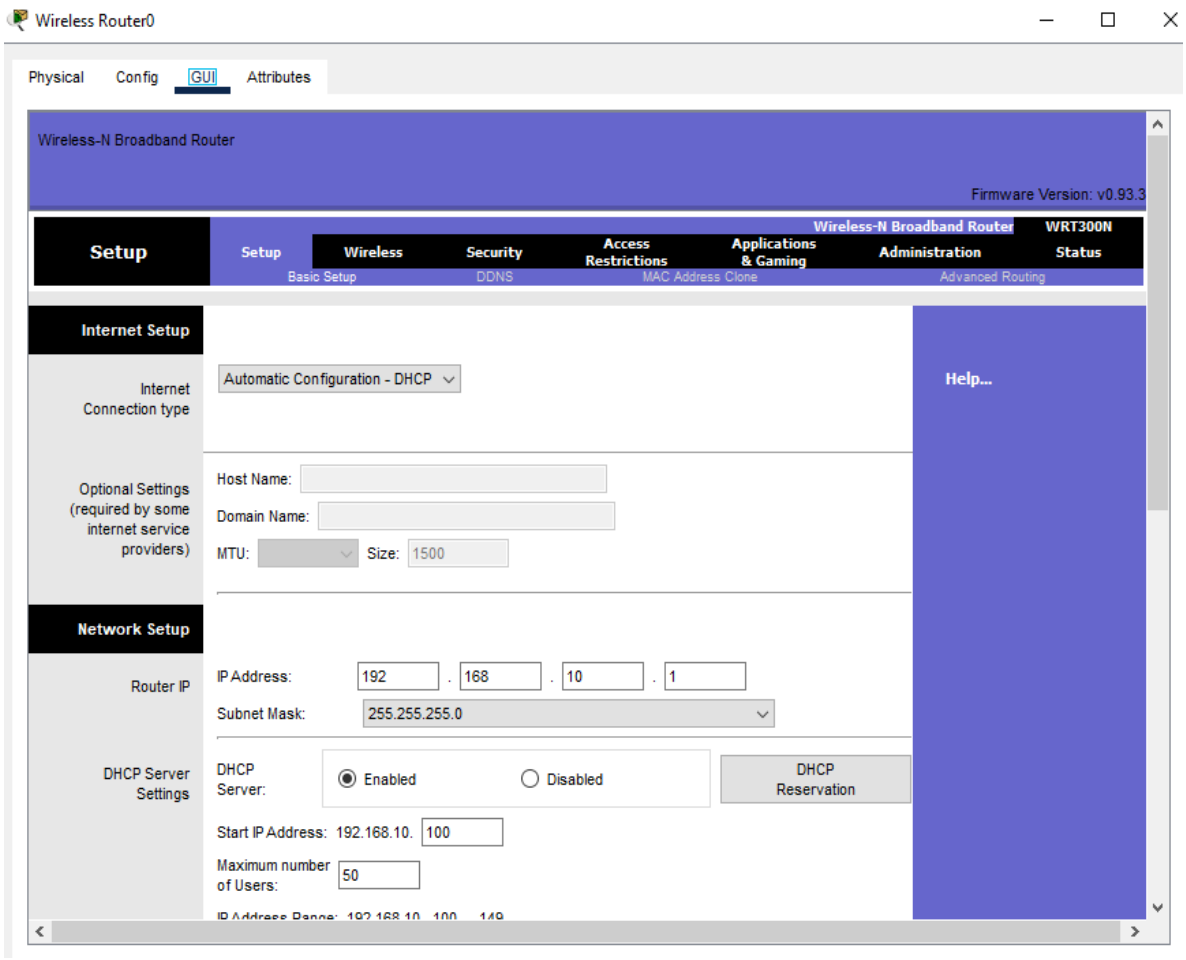

PC1
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
FastEthernet0
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
0050.0F2C.147A
IP Configuration
DHCP
Static
IPv4 Address
172.17.20.22
Subnet Mask
255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address:
FE80::250:FFF:FE2C:147A


PC4
Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
172.17.20.25
Subnet Mask
255.255.255.0
Default Gateway
172.17.20.1
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::201:96FF:FE1A:84AC
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password



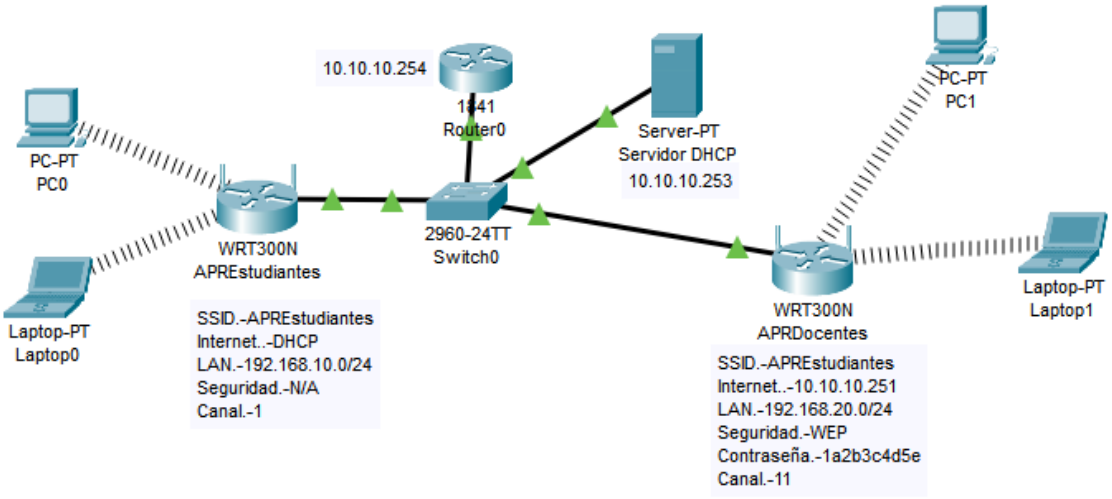
PRACTICA_15 RED WLAN CON UN AP ROUTER Y DOS EQUIPOS.

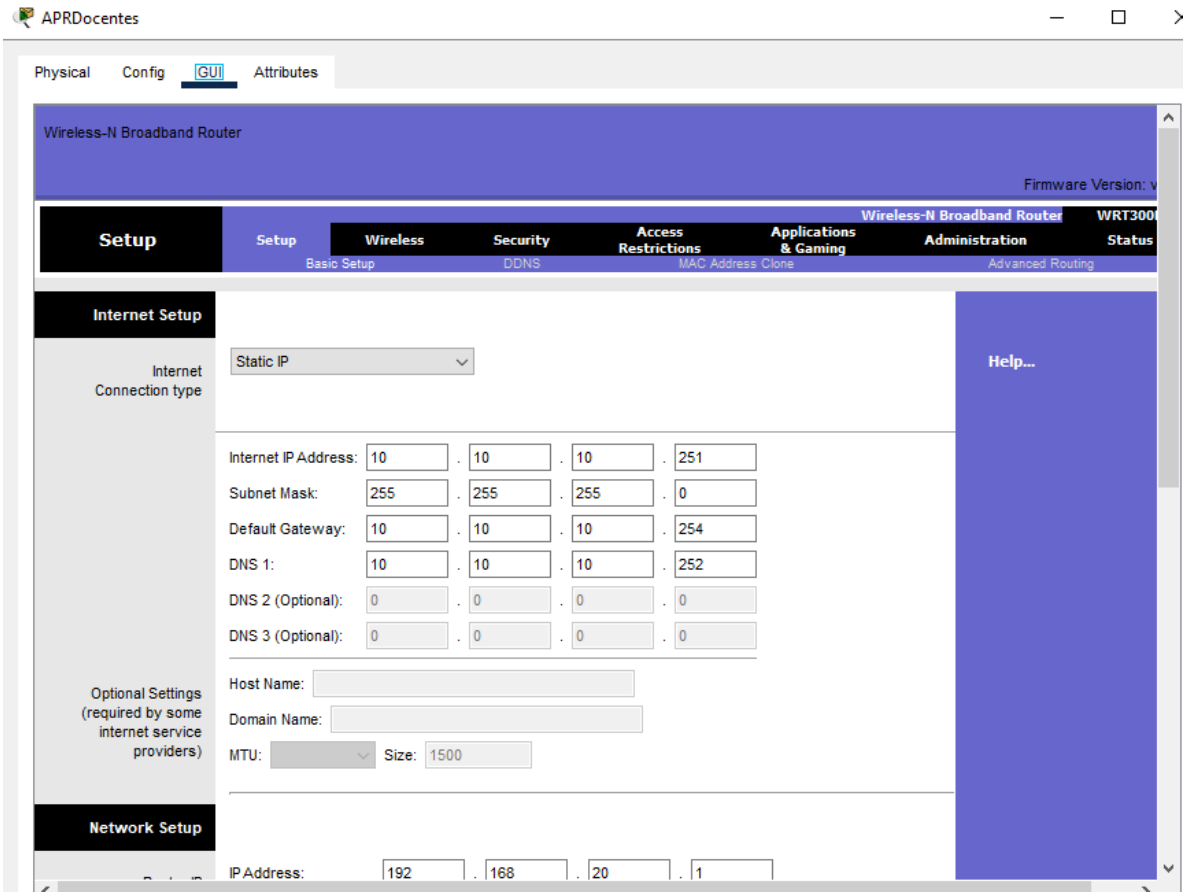


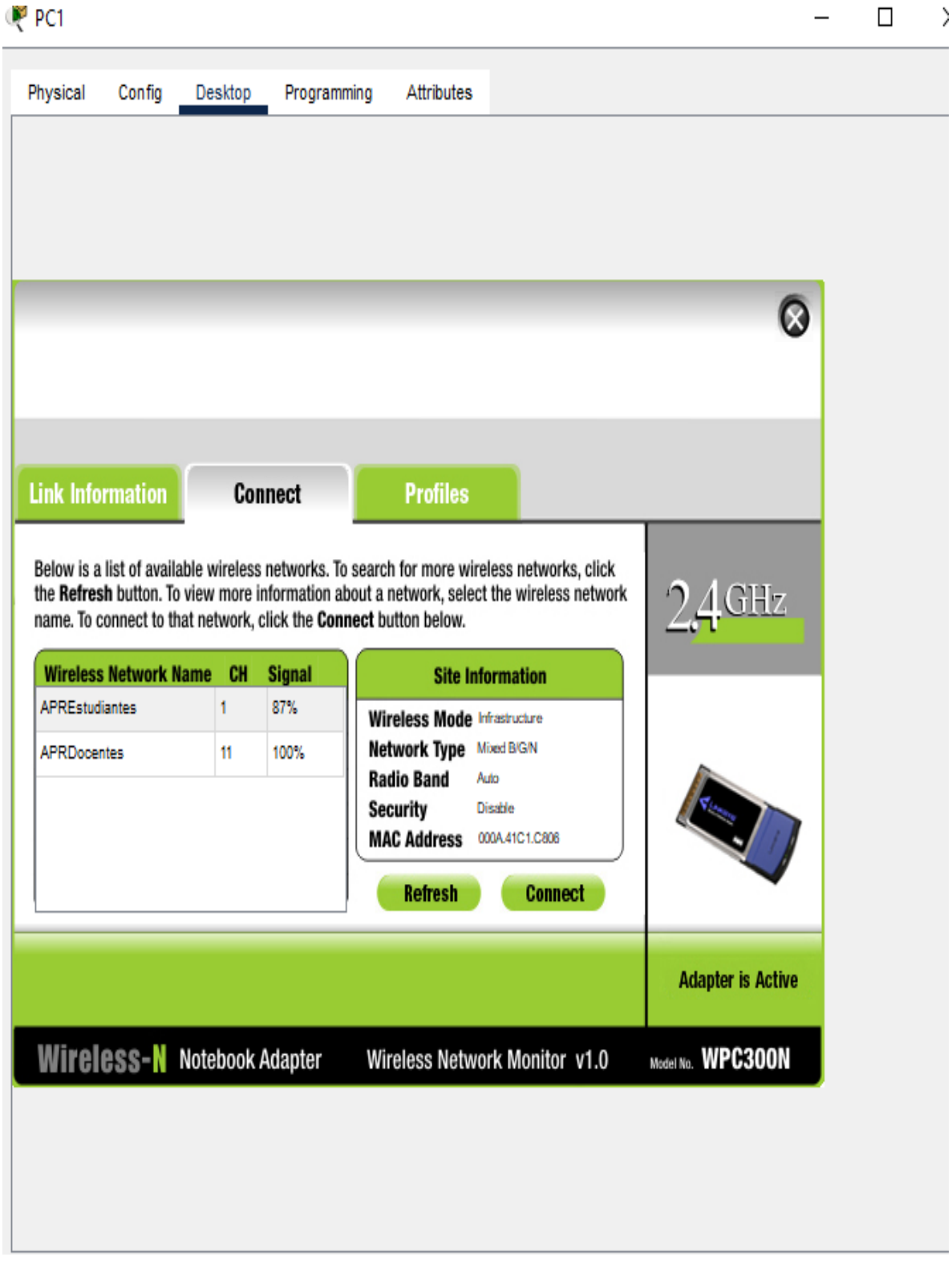

Wireless Router0
Physical
Config
GUI
Attributes
Wireless-N Broadband Router
Firmware Version: v0.93.3
Setup
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Wireless-N Broadband Router
WRT300N
Basic Setup
DDNS
MAC Address Clone
Advanced Routing
Internet Setup
Internet Connection type
Automatic Configuration - DHCP
Optional Settings (required by some internet service providers)
Host Name:
Domain Name:
MTU:
Size:
1500
Network Setup
Router IP
IP Address:
192
168
10
1
Subnet Mask:
255.255.255.0
DHCP Server Settings
DHCP Server:
Enabled
Disabled
DHCP Reservation
Start IP Address: 192.168.10.
100
Maximum number of Users:
50
Help...

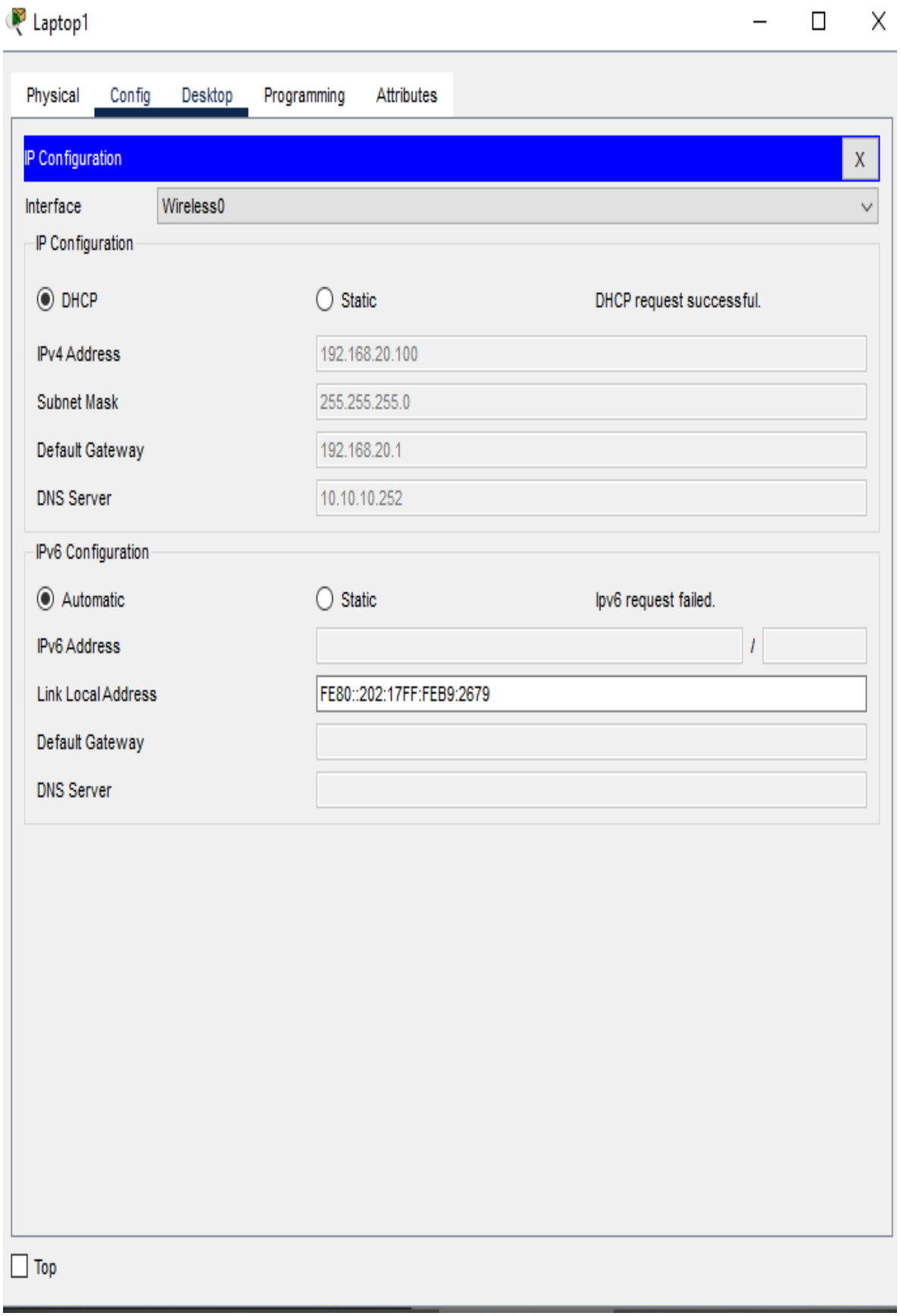

Link Information
Connect
Profiles
Below is a list of available wireless networks. To search for more wireless networks, click the Refresh button. To view more information about a network, select the wireless network name. To connect to that network, click the Connect button below.
Wireless Network Name
CH
Signal
APRPrueba
1
100%
Site Information
Wireless Mode Infrastructure
Network Type Mixed B/G/N
Radio Band Auto
Security Disable
MAC Address 0060.5C81.1606
Refresh
Connect
2.4GHz
Adapter is Active
Wireless-N Notebook Adapter
Wireless Network Monitor v1.0
Model No. WPC300N

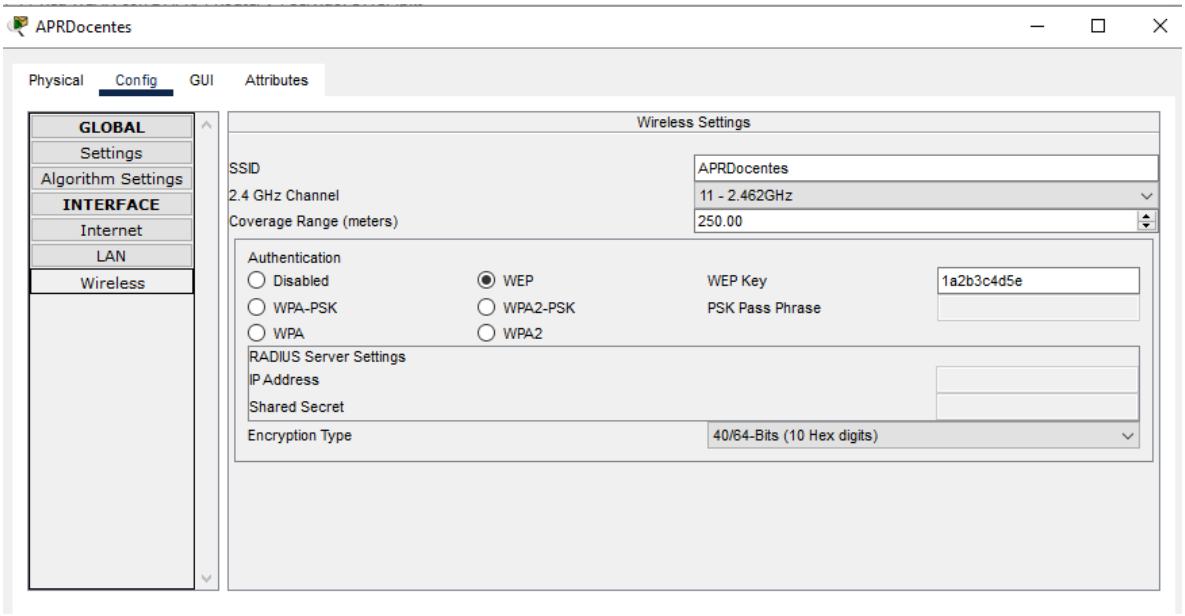
PRACTICA_16 RED WLAN CON 2 APR,1 ROUTER Y 1 SERVIDOR.



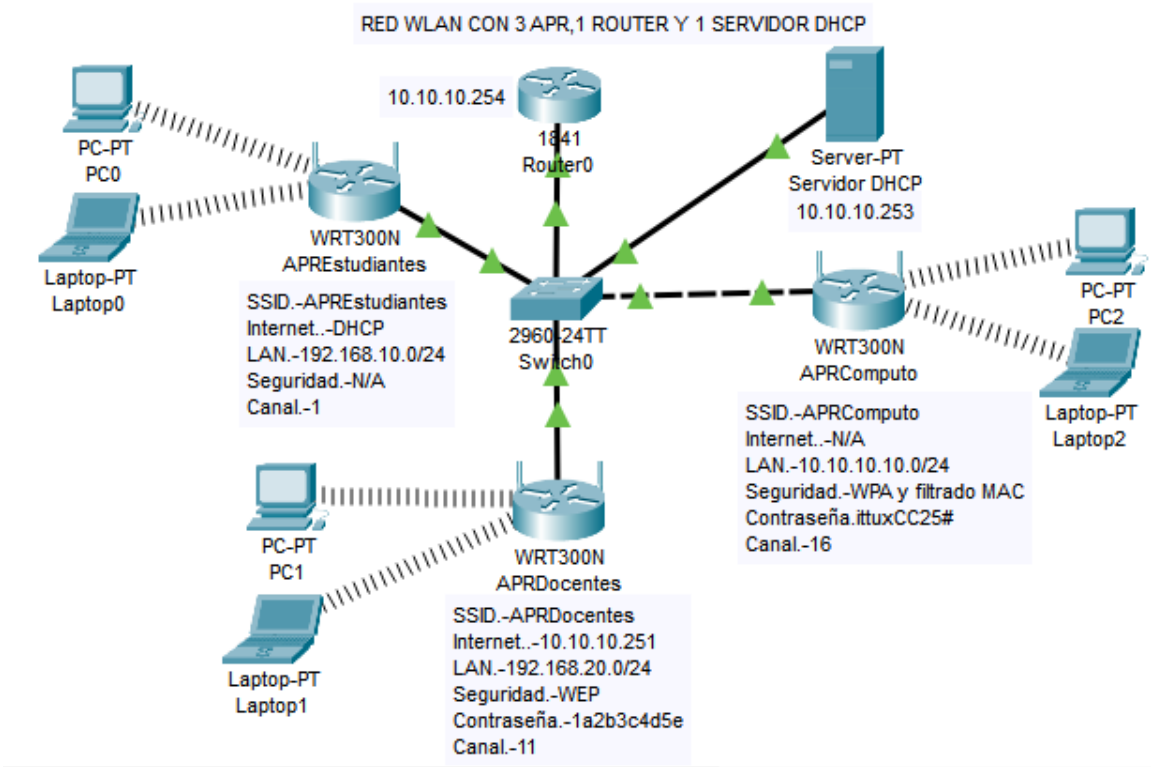


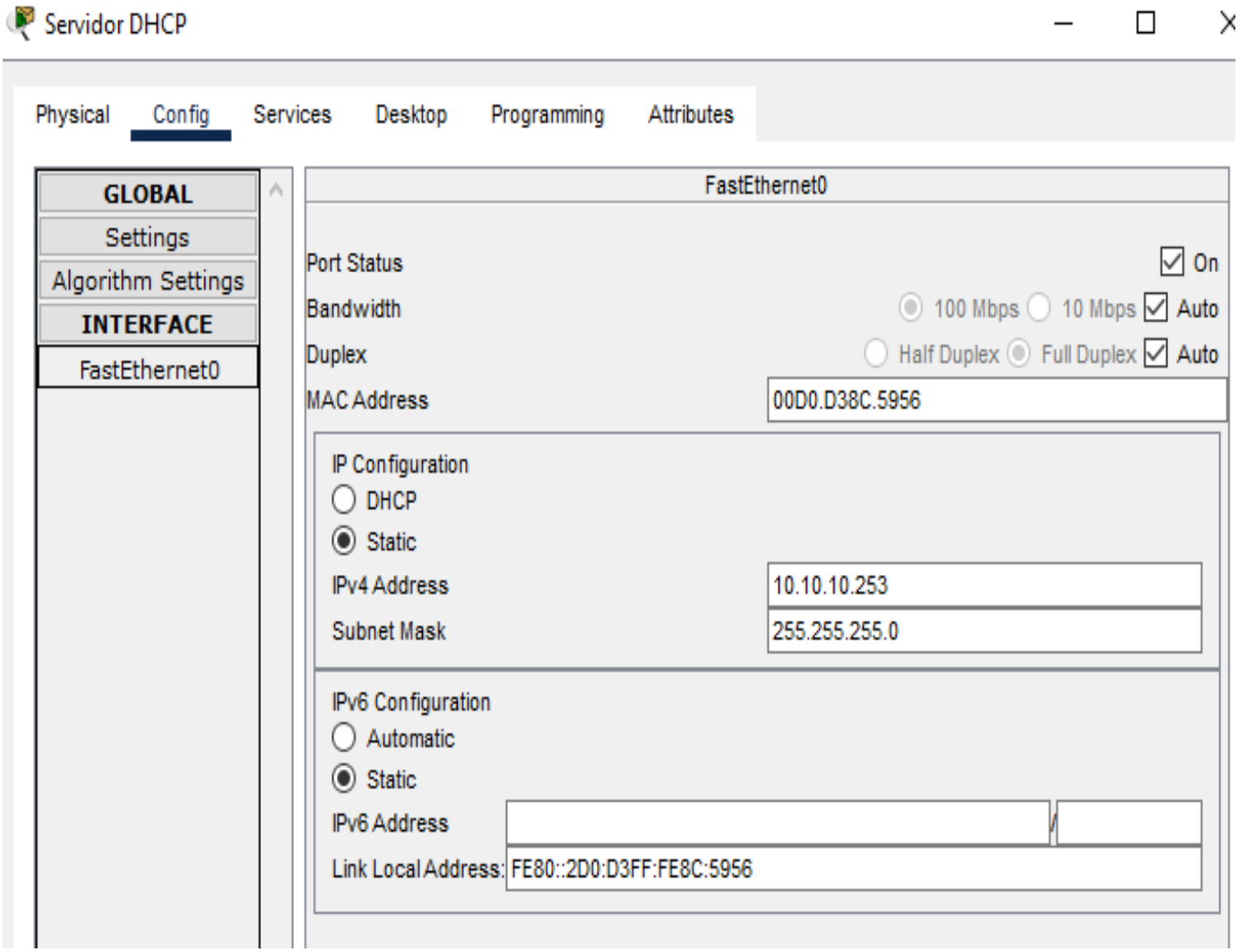

PC1
Physical
Config
Desktop
Programming
Attributes
Link Information
Connect
Profiles
Below is a list of available wireless networks. To search for more wireless networks, click the Refresh button. To view more information about a network, select the wireless network name. To connect to that network, click the Connect button below.
2.4GHz
Wireless Network Name
CH
Signal
APREstudiantes
1
87%
APRDocentes
11
100%
Site Information
Wireless Mode
Infrastructure
Network Type
Mixed B/G/N
Radio Band
Auto
Security
Disable
MAC Address
000A.41C1.C806
Refresh
Connect
Adapter is Active
Wireless-N
Notebook Adapter
Wireless Network Monitor v1.0
Model No.
WPC300N


Laptop1
Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
Wireless0
IP Configuration
DHCP
Static
DHCP request successful.
IPv4 Address
192.168.20.100
Subnet Mask
255.255.255.0
Default Gateway
192.168.20.1
DNS Server
10.10.10.252
IPv6 Configuration
Automatic
Static
Ipv6 request failed.
IPv6 Address
/
Link Local Address
FE80::202:17FF:FEB9:2679
Default Gateway
DNS Server
Top

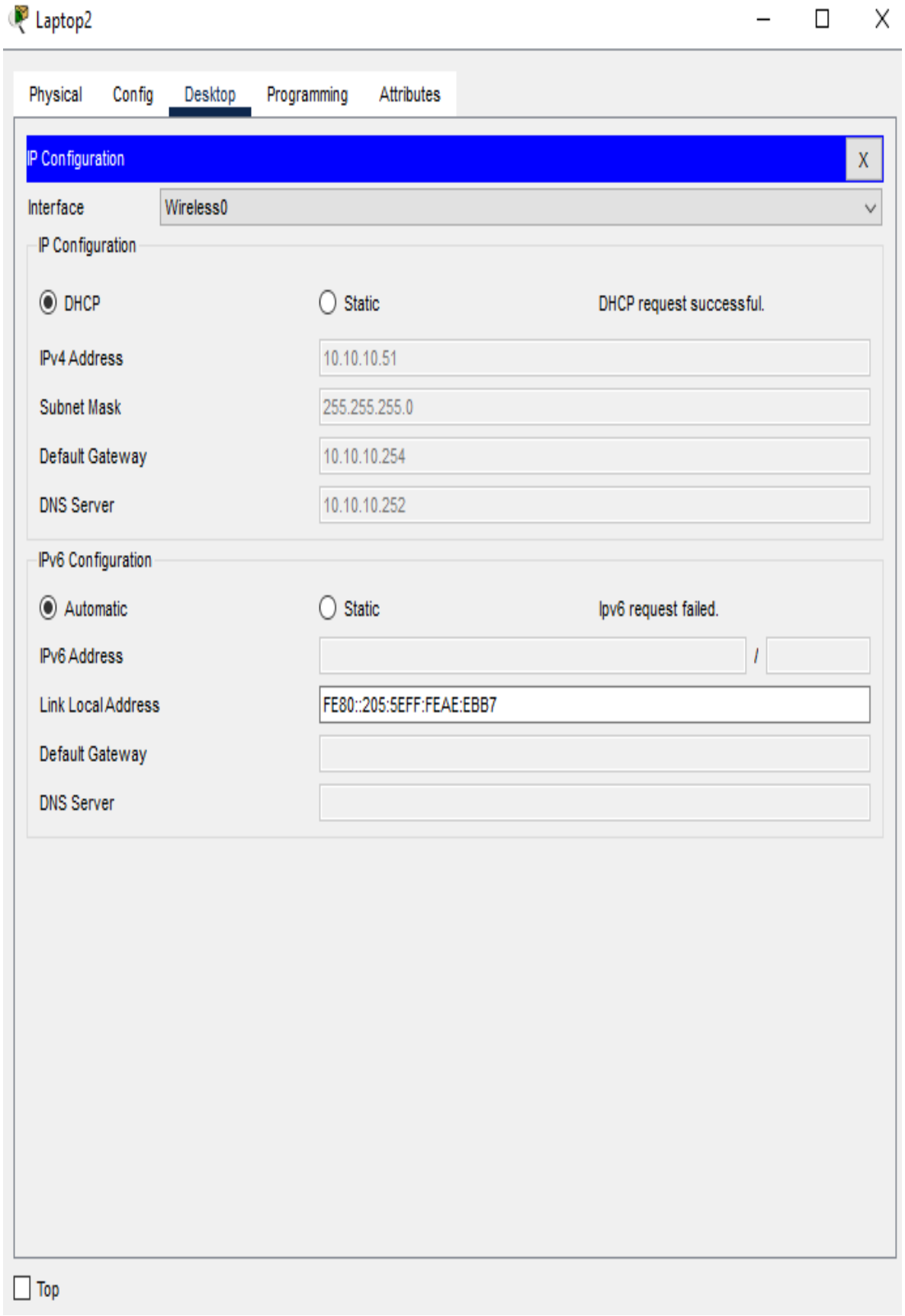


PRACTICA_17 RED WLAN CON 3 APR,1 ROUTER Y 1 SERVIDOR DHCP.




Servidor DHCP
Physical
Config
Services
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
FastEthernet0
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
00D0.D38C.5956
IP Configuration
DHCP
Static
IPv4 Address
10.10.10.253
Subnet Mask
255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address:
FE80::2D0:D3FF:FE8C:5956


Laptop2
Physical
Config
Desktop
Programming
Attributes
Link Information
Connect
Profiles
Below is a list of available wireless networks. To search for more wireless networks, click the Refresh button. To view more information about a network, select the wireless network name. To connect to that network, click the Connect button below.
2.4GHz
Wireless Network Name
CH
Signal
APREstudiantes
1
63%
APRDocentes
11
80%
APRComputo
6
100%
Site Information
Wireless Mode Infrastructure
Network Type Mixed B/G/N
Radio Band Auto
Security Disable
MAC Address 000A.41C1.C806
Refresh
Connect
Adapter is Active
Wireless-N Notebook Adapter
Wireless Network Monitor v1.0
Model No. WPC300N


Laptop2
Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
Wireless0
IP Configuration
DHCP
Static
DHCP request successful.
IPv4 Address
10.10.10.51
Subnet Mask
255.255.255.0
Default Gateway
10.10.10.254
DNS Server
10.10.10.252
IPv6 Configuration
Automatic
Static
Ipv6 request failed.
IPv6 Address
/
Link Local Address
FE80::205:5EFF:FEAE:EBB7
Default Gateway
DNS Server
Top

Conclusión

El desarrollo de las prácticas de interconectividad en Cisco Packet Tracer permitió fortalecer de manera significativa la comprensión del funcionamiento de una red y de los elementos que la conforman. A lo largo del curso, aprendimos a asignar direcciones IP, aplicar máscaras de subred, conectar equipos a switches y verificar la comunicación entre dispositivos, lo cual nos proporcionó una visión más completa y práctica de cómo se construye y gestiona una red.