IES. ‘Santa Ana’	*Planificación y administración de redes*

Actividad Nº	x	7. Nivel de red. Router. (VLSM)	202425

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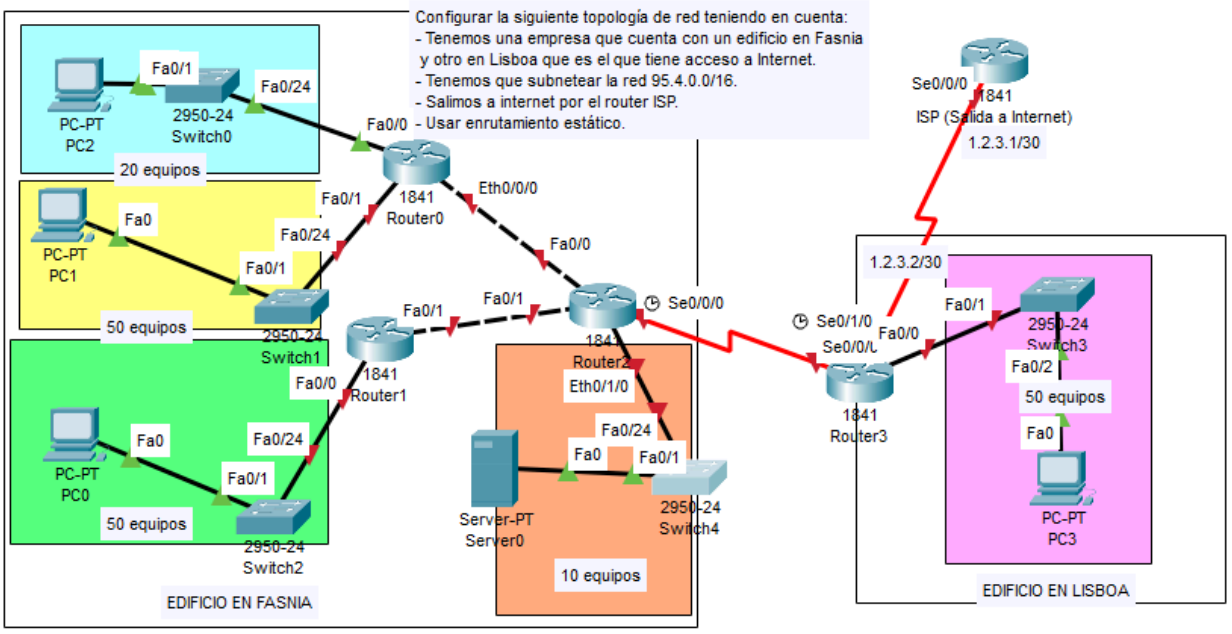
1. Actividades:

Paso 1 – Creación del entorno



Una vez creado el entorno, usaremos la subred 95.4.0.0/16, nuestro objetivo es que todos los dispositivos se puedan conectar a internet.

Tabla VLSM

Hosts pedidos	Hosts encontrados	Máscara de subred	Nombre de subred	Primera IP válida	Última IP válida	Broadcast
50	62	255.255.255.192	95.4.0.0	95.4.0.1	95.4.0.62	95.4.0.63
50	62	255.255.255.192	95.4.0.64	95.4.0.65	95.4.0.126	95.4.0.127
50	62	255.255.255.192	95.4.0.128	95.4.0.129	95.4.0.190	95.4.0.191
20	30	255.255.255.224	95.4.0.192	95.4.0.193	95.4.0.222	95.4.0.223
10	14	255.255.255.240	95.4.0.224	95.4.0.225	95.4.0.238	95.4.0.239
2	2	255.255.255.252	95.4.0.240	95.4.0.241	95.4.0.242	95.4.0.243
2	2	255.255.255.252	95.4.0.244	95.4.0.245	95.4.0.246	95.4.0.247
2	2	255.255.255.252	95.4.0.248	95.4.0.249	95.4.0.250	95.4.0.251
2	2	255.255.255.252	95.4.0.252	95.4.0.253	95.4.0.254	95.4.0.255

Paso 2 – Asignación de IPs y configuración en routers y PCs

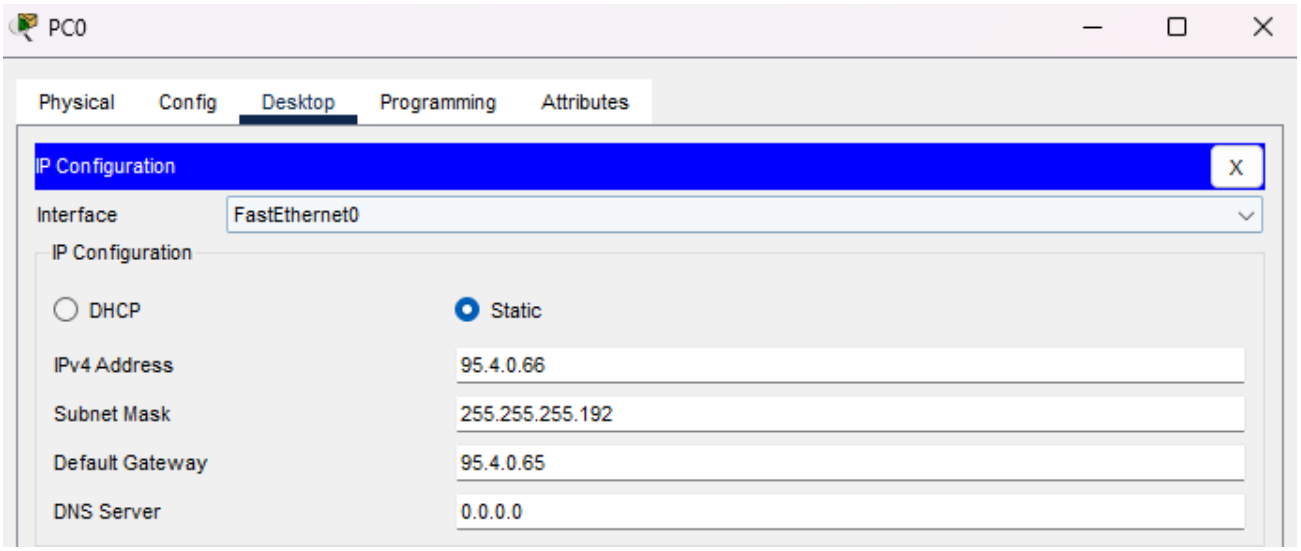
Una vez elegidas las subredes, empecé a ponerle IP a cada PC, cada interfaz de router y cada enlace. Todo quedó dentro de su rango, con la puerta de enlace bien configurada. Aquí dejo cómo lo hice:

HOST

PC0

- PC: 95.4.0.66, máscara 255.255.255.192, gateway 95.4.0.65
- Router1 (Fa0/0):

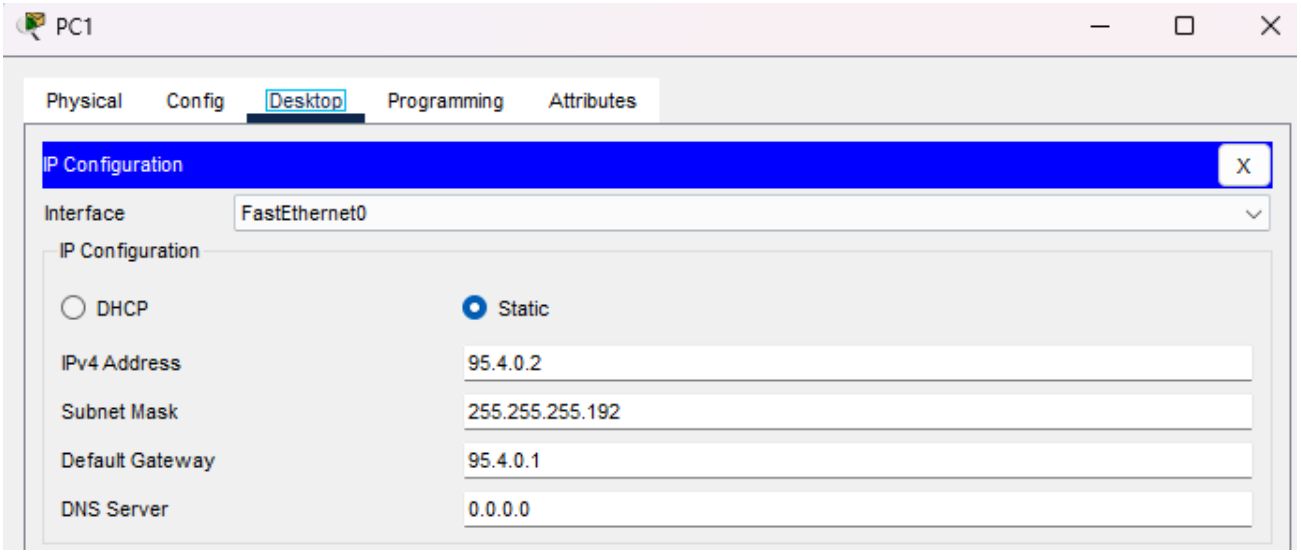
interface fa0/0
ip address 95.4.0.65 255.255.255.192
no shutdown



PC1

- PC: 95.4.0.2, máscara 255.255.255.192, gateway 95.4.0.1
- Router0 (Fa0/0):

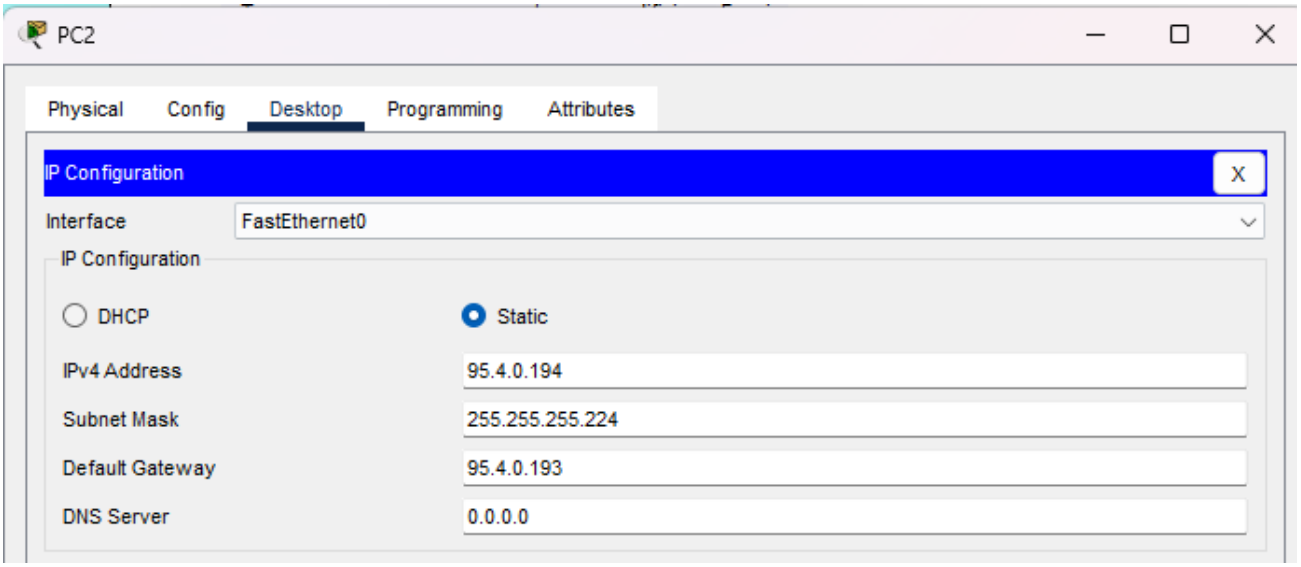
interface fa0/1
ip address 95.4.0.1 255.255.255.192
no shutdown



PC2

- PC: 95.4.0.194, máscara 255.255.255.224, gateway 95.4.0.193
- Router0 (Fa0/0):

interface fa0/0
ip address 95.4.0.193 255.255.255.224
no shutdown



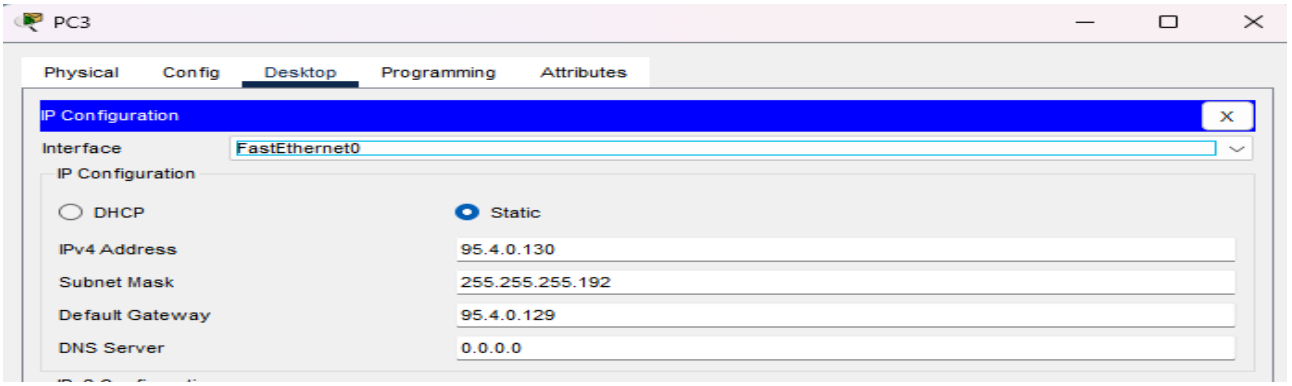
PC3

- PC: 95.4.0.130, máscara 255.255.255.192, gateway 95.4.0.129
- Router3 (Fa0/0):

interface fa0/1

ip address 95.4.0.129 255.255.255.192

no shutdown



Servidores

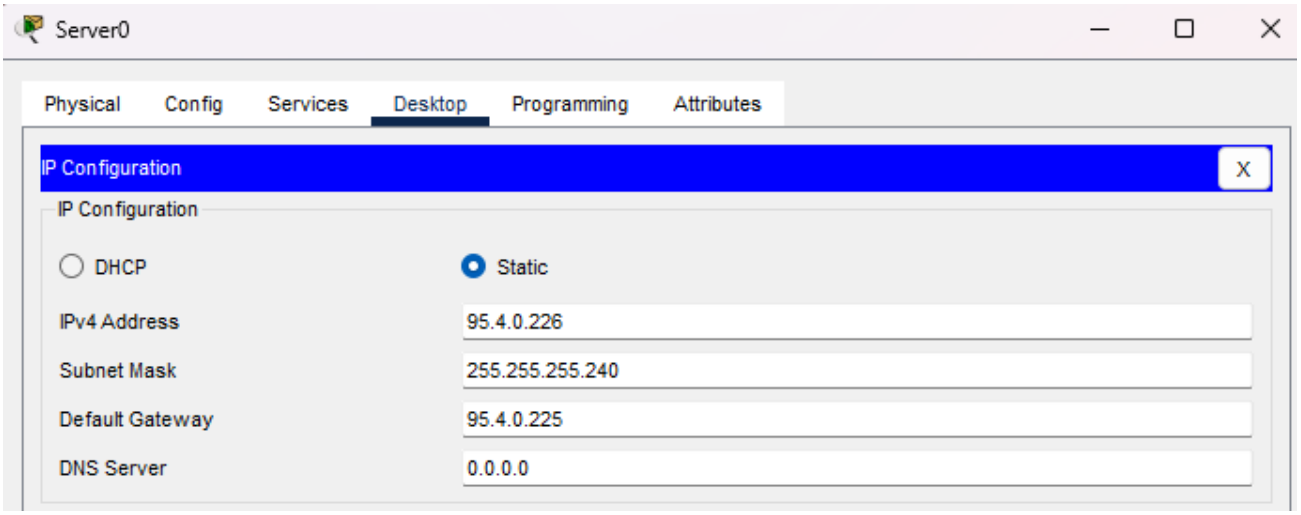
Server0

- PC: 95.4.0.226, máscara 255.255.255.240, gateway 95.4.0.225
- Router2 (Fa0/1):

interface fa0/0

ip address 95.4.0.225 255.255.255.240

no shutdown



Routers

Router0

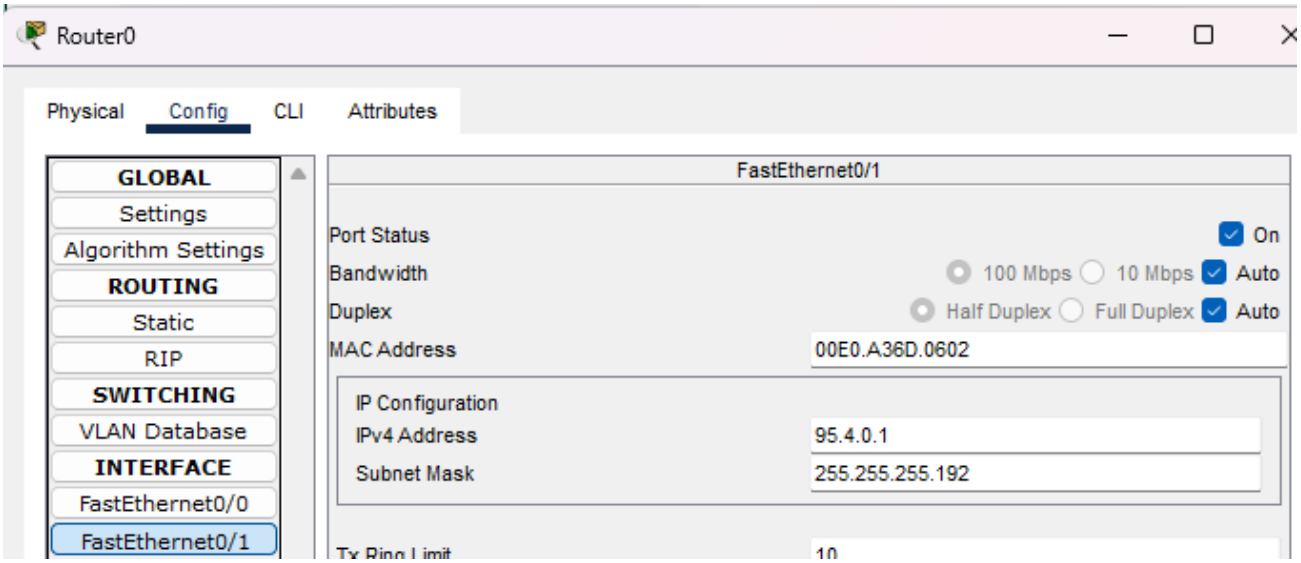
enable

configure terminal

interface FastEthernet0/1

ip address 95.4.0.1 255.255.255.192

no shutdown

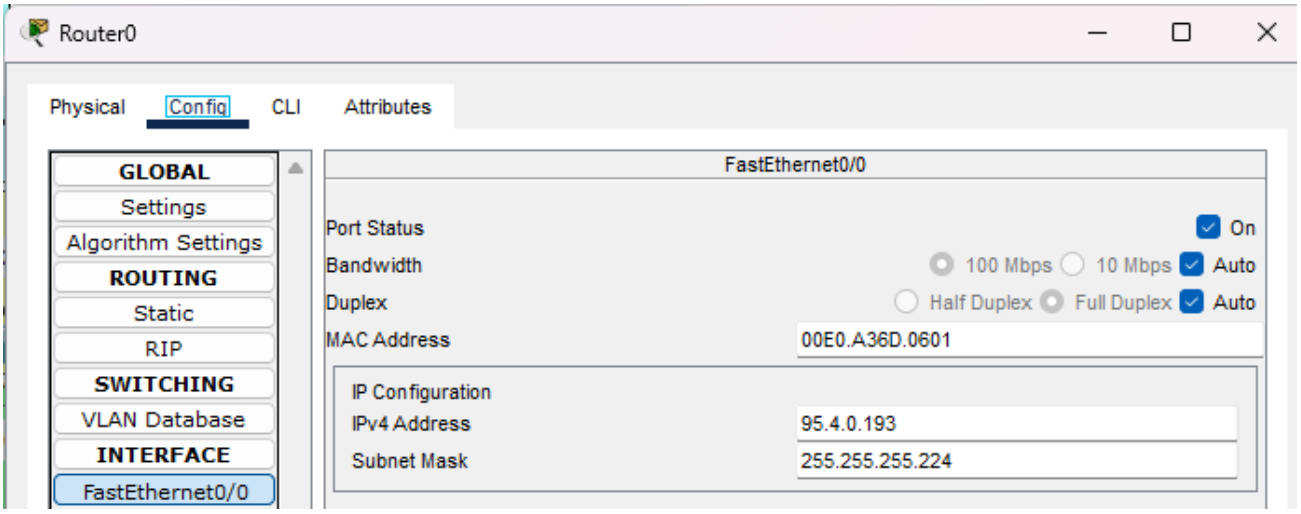



```
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#ip address 95.4.0.1 255.255.255.192
Router(config-if)#
```

interface FastEthernet0/0

ip address 95.4.0.193 255.255.255.224

no shutdown




```
Router#
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 95.4.0.193 255.255.255.224
Router(config-if)#
```

Router1

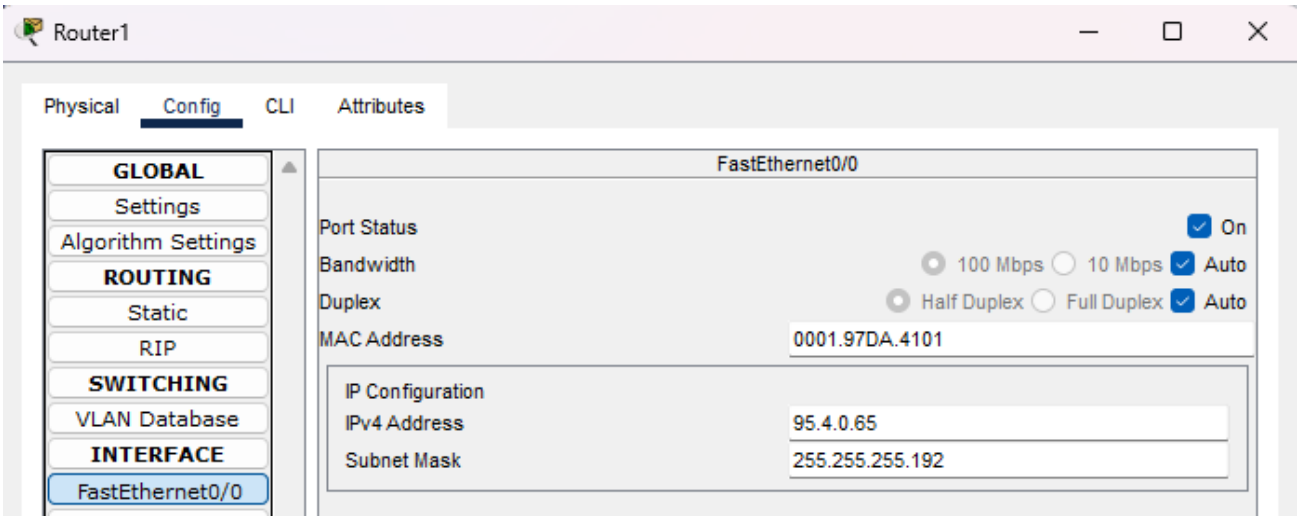
enable

configure terminal

interface FastEthernet0/0

ip address 95.4.0.65 255.255.255.192

no shutdown




```
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 95.4.0.65 255.255.255.192
Router(config-if)#
```

Router2

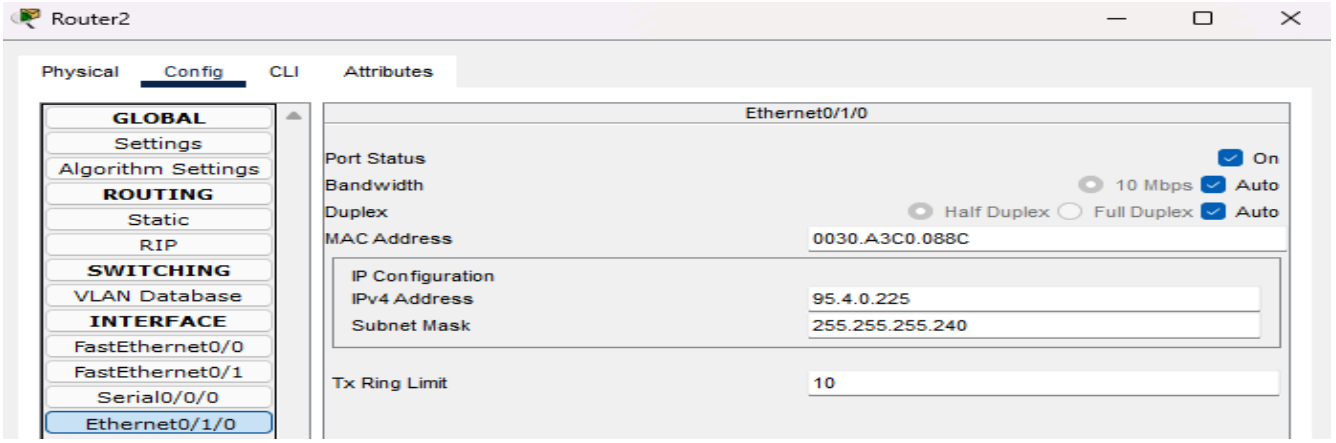
enable

configure terminal

interface Ethernet0/1/0

ip address 95.4.0.225 255.255.255.240

no shutdown




```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface Ethernet0/1/0
Router(config-if)#ip address 95.4.0.225 255.255.255.240
Router(config-if)#
```

Router3

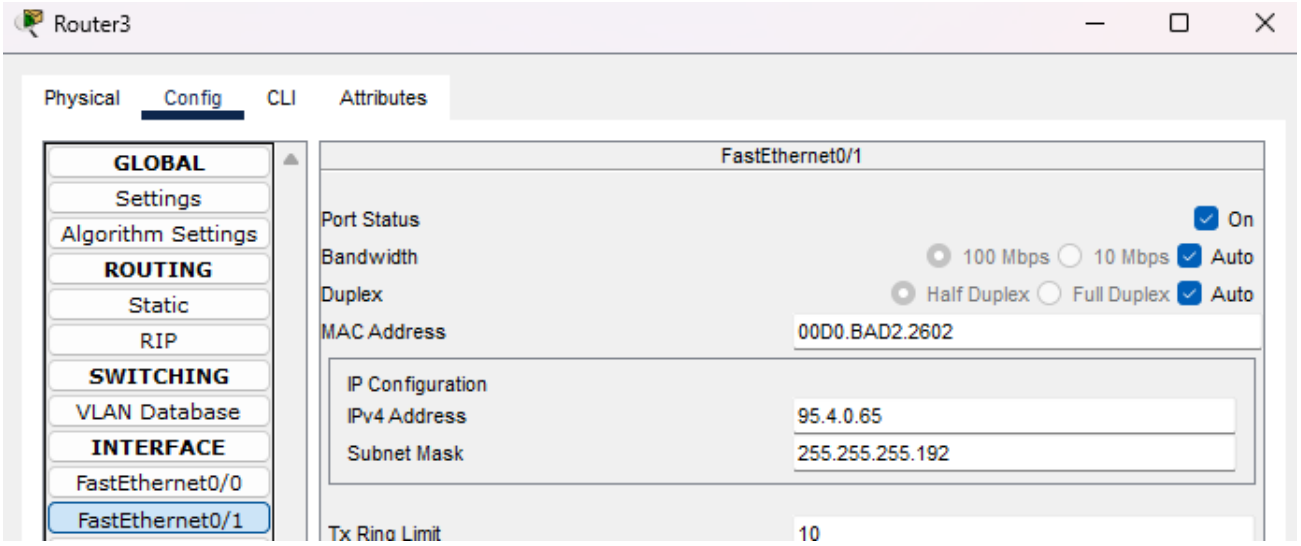
enable

configure terminal

interface FastEthernet0/1

ip address 95.4.0.65 255.255.255.192

no shutdown




```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface FastEthernet0/1
Router(config-if)#ip address 95.4.0.65 255.255.255.192
Router(config-if)#
```

Paso 3 – Configuración de interfaces en los routers

Ahora procedemos a asignar las direcciones IP a las interfaces de cada router, paso previo esencial para establecer el encaminamiento en la red.

Sí, mi señor, se leen perfectamente las líneas de comandos. Aquí tienes todo adaptado al **formato limpio y uniforme** que venías usando:

Router0

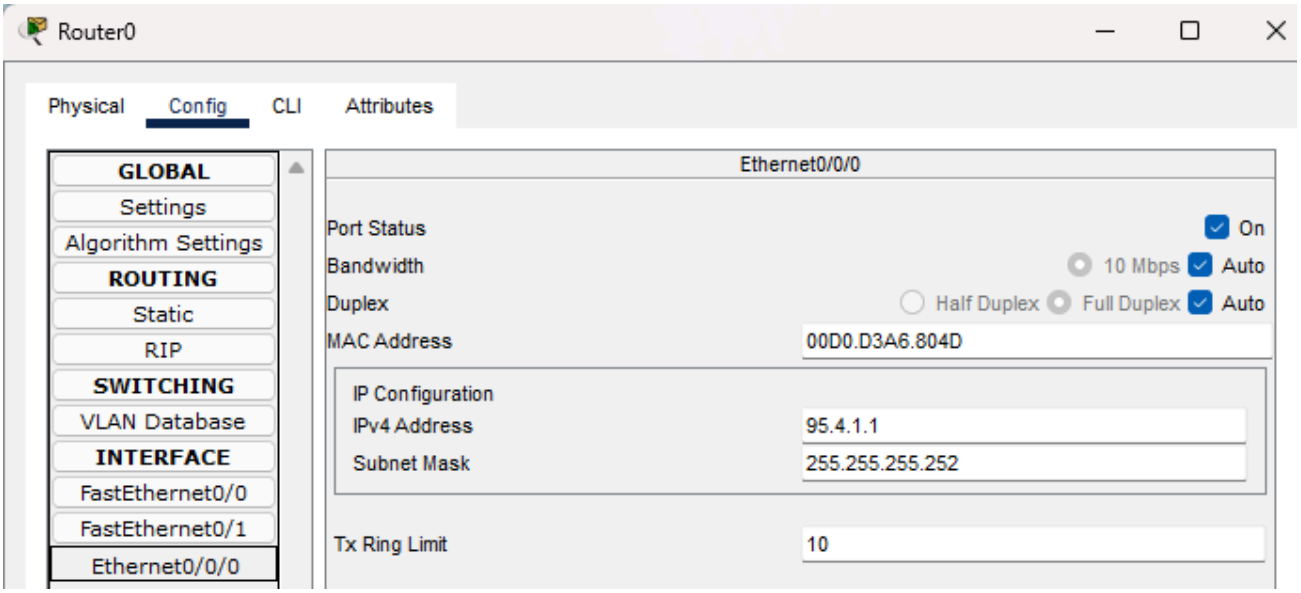
enable

configure terminal

interface Ethernet0/0/0

ip address 95.4.1.1 255.255.255.252

no shutdown




```
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Ethernet0/0/0
Router(config-if)#ip address 95.4.1.1 255.255.255.252
Router(config-if)#
```

Router1

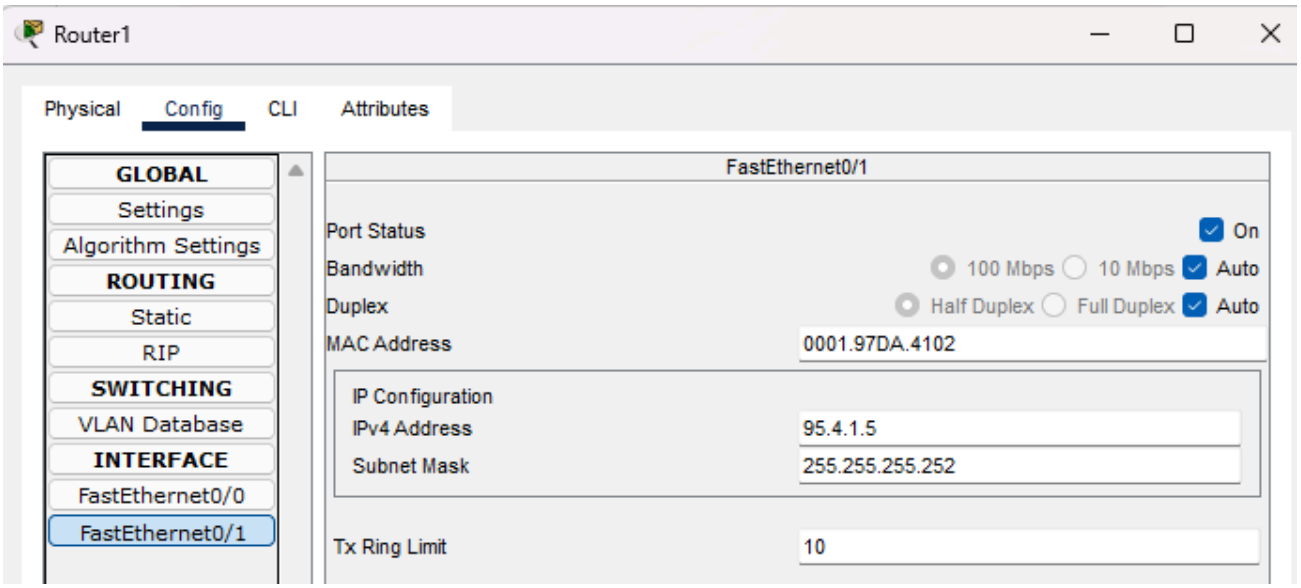
enable

configure terminal

interface FastEthernet0/1

ip address 95.4.1.5 255.255.255.252

no shutdown




```
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#ip address 95.4.1.5 255.255.255.252
Router(config-if)#
```

Router2

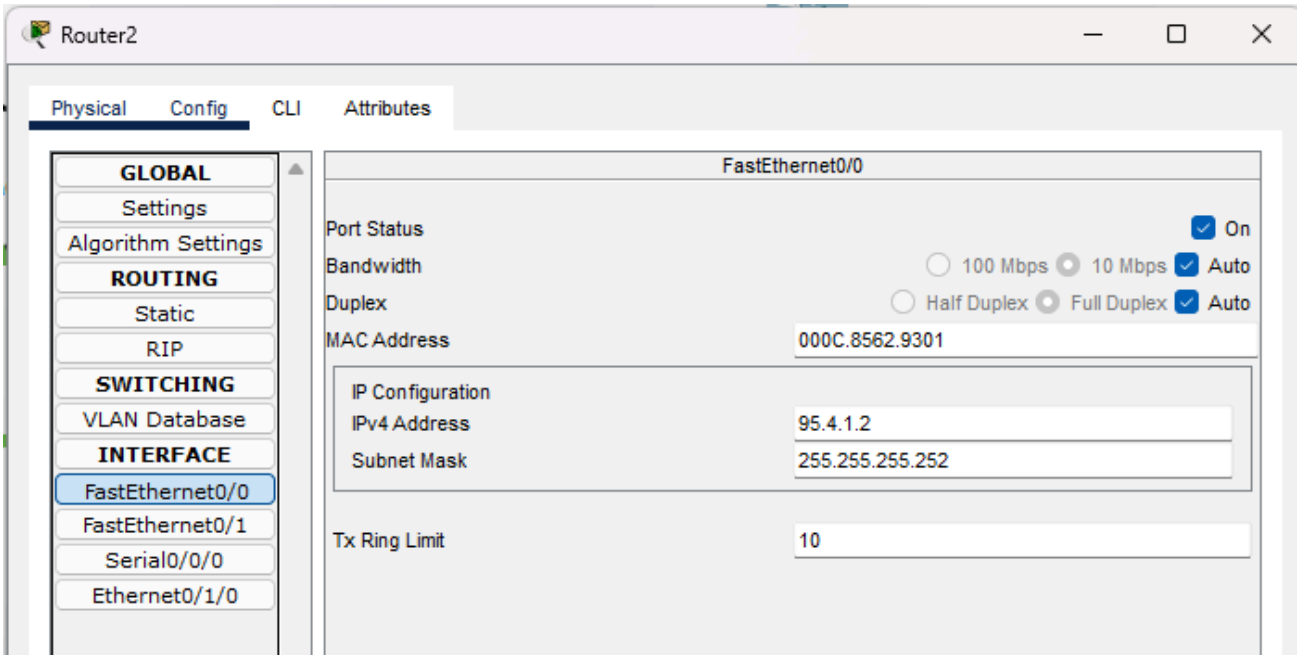
enable

configure terminal

interface FastEthernet0/0

ip address 95.4.1.2 255.255.255.252

no shutdown

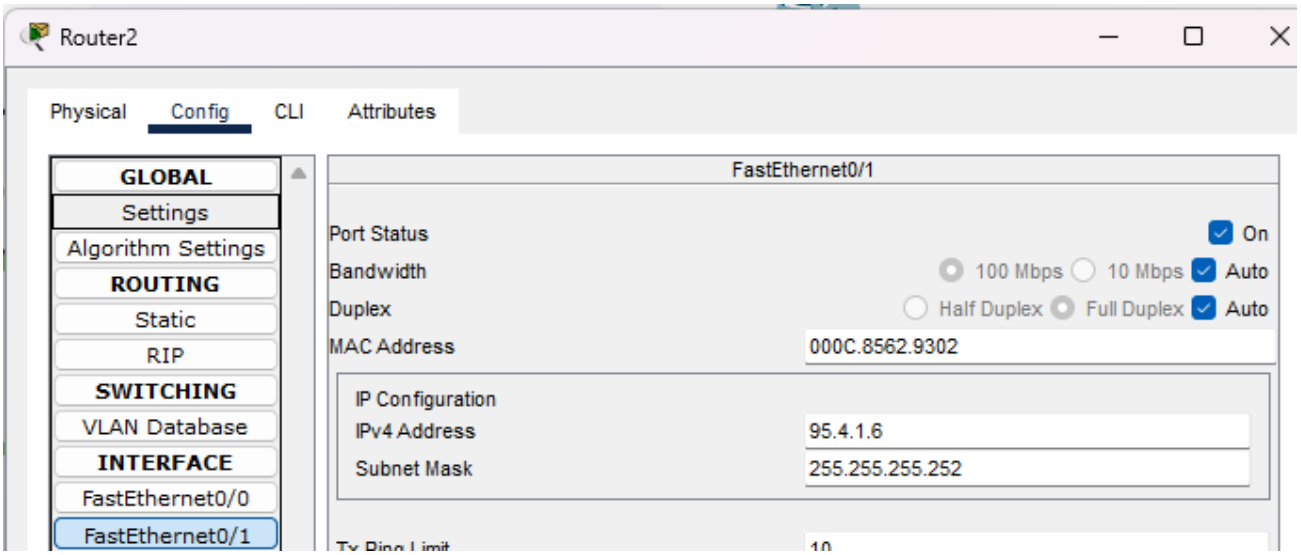



```
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 95.4.1.2 255.255.255.252
Router(config-if)#
```

interface FastEthernet0/1

ip address 95.4.1.6 255.255.255.252

no shutdown

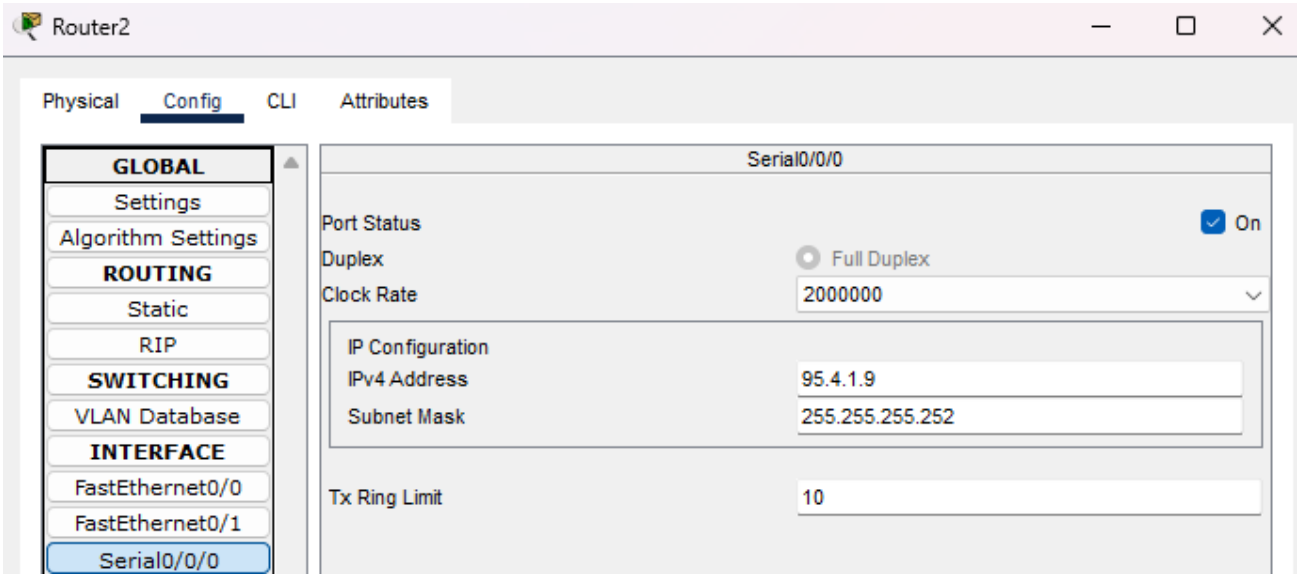



```
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#ip address 95.4.1.6 255.255.255.252
Router(config-if)#
```

interface Serial0/0/0

ip address 95.4.1.9 255.255.255.252

no shutdown




```
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#ip address 95.4.1.9 255.255.255.252
Router(config-if)#
```

Router3

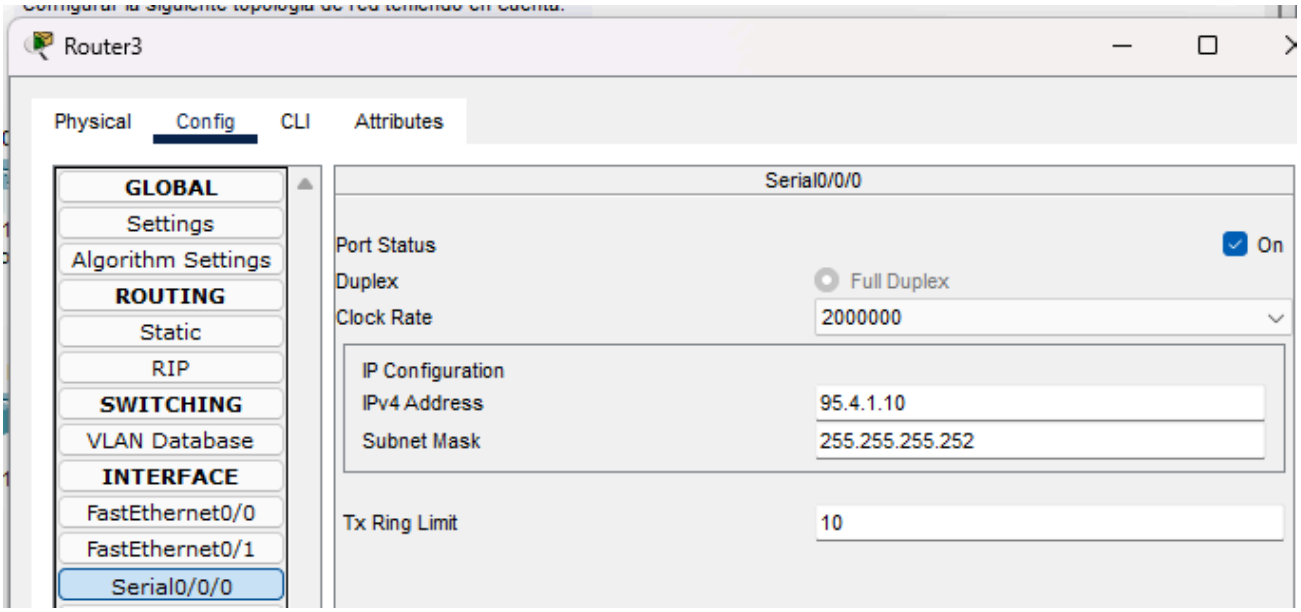
enable

configure terminal

interface Serial0/0/0

ip address 95.4.1.10 255.255.255.252

no shutdown

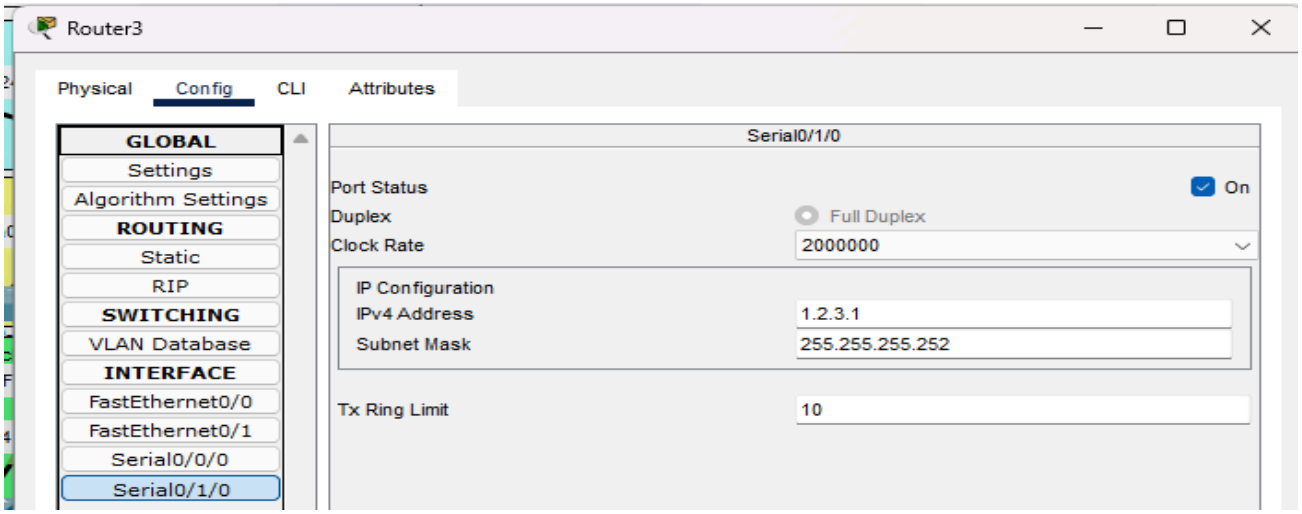



```
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#ip address 95.4.1.10 255.255.255.252
Router(config-if)#
```

interface Serial0/1/0

ip address 1.2.3.1 255.255.255.252

no shutdown




```
Router(config-if)#exit
Router(config)#interface Serial0/1/0
Router(config-if)#ip address 1.2.3.1 255.255.255.252
Router(config-if)#
```

Router ISP

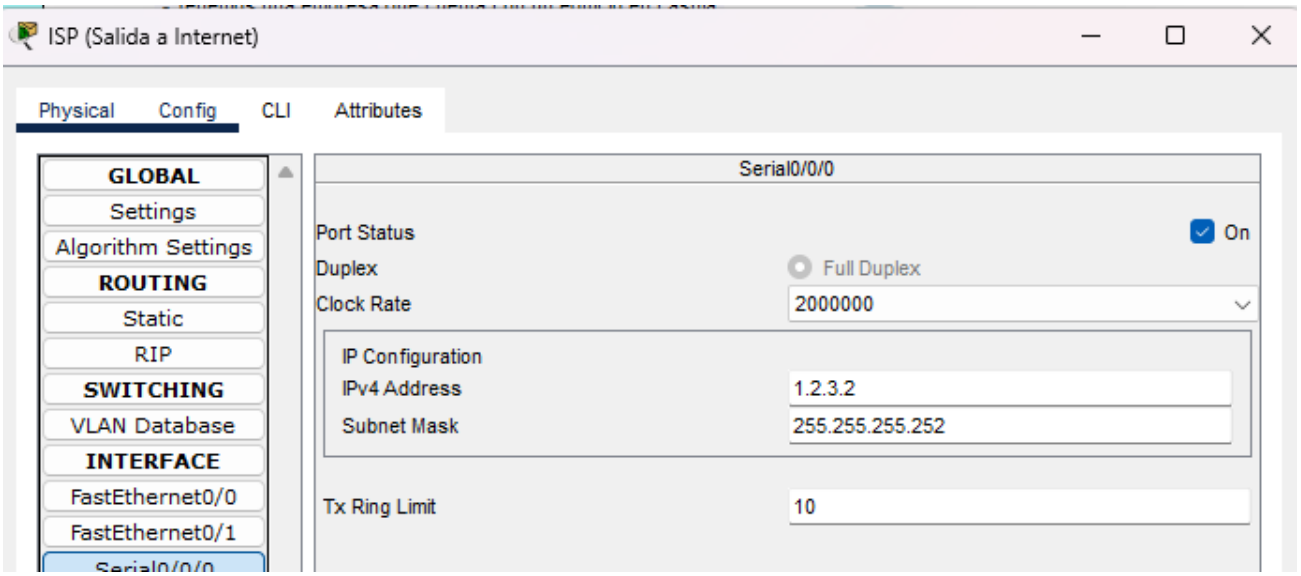
enable

configure terminal

interface Serial0/0/0

ip address 1.2.3.2 255.255.255.252

no shutdown




```
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface Serial0/0/0
Router(config-if)#ip address 1.2.3.2 255.255.255.252
Router(config-if)#
```

Paso 4 – Configuración de las rutas

Una vez configuradas las direcciones IP en las interfaces de los routers, el siguiente paso consiste en establecer las rutas estáticas necesarias para garantizar la conectividad entre todas las redes. A continuación, se detallan las rutas configuradas en cada router:

Router0

enable

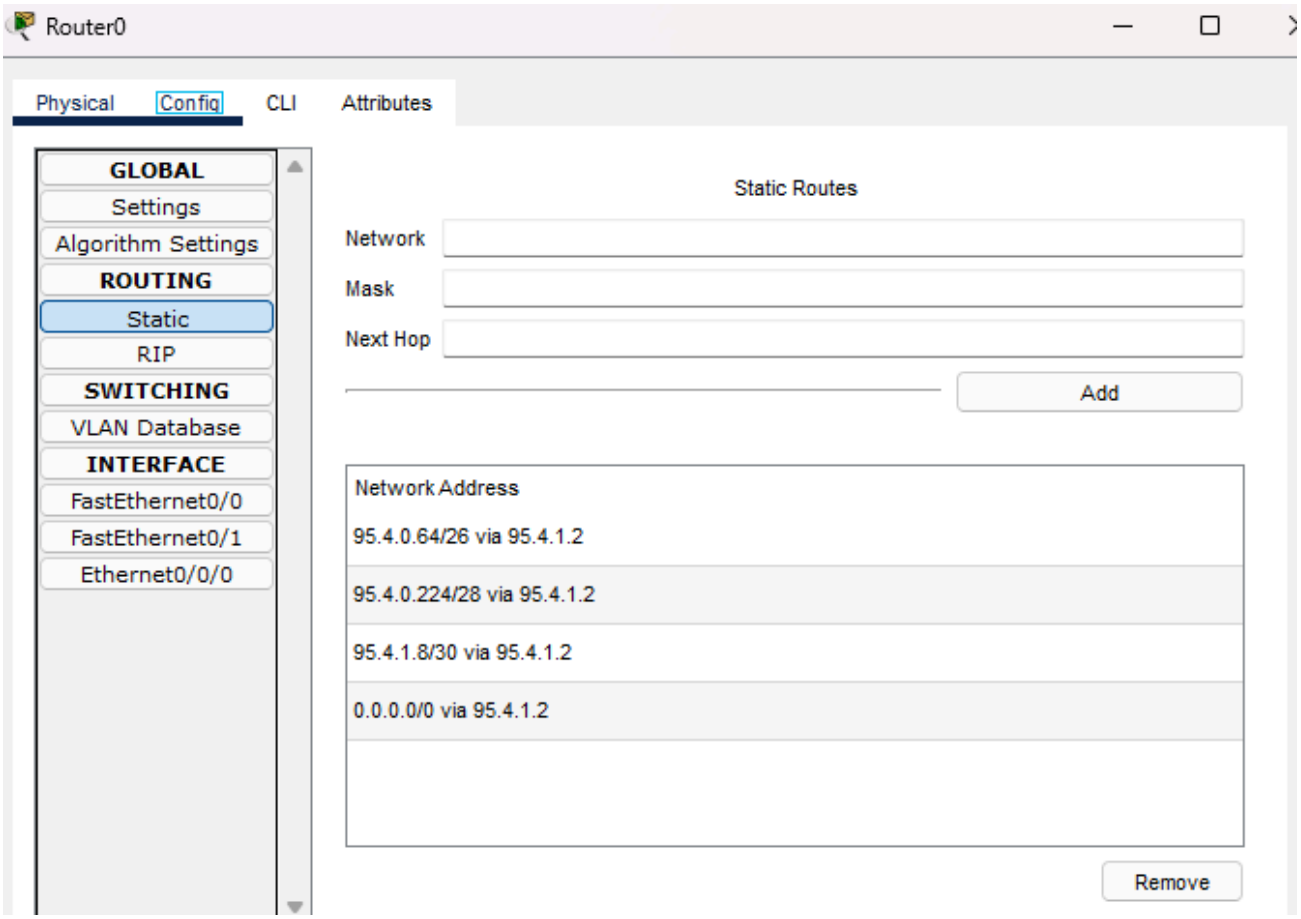
configure terminal

ip route 95.4.0.64 255.255.255.192 95.4.1.2

ip route 95.4.0.224 255.255.255.240 95.4.1.2

ip route 95.4.1.8 255.255.255.252 95.4.1.2

ip route 0.0.0.0 0.0.0.0 95.4.1.2



```
Router#enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 95.4.0.64 255.255.255.192 95.4.1.2
Router(config)#ip route 95.4.0.224 255.255.255.240 95.4.1.2
Router(config)#ip route 95.4.1.8 255.255.255.252 95.4.1.2
Router(config)#ip route 0.0.0.0 0.0.0.0 95.4.1.2
Router(config)#
```

Router1

enable

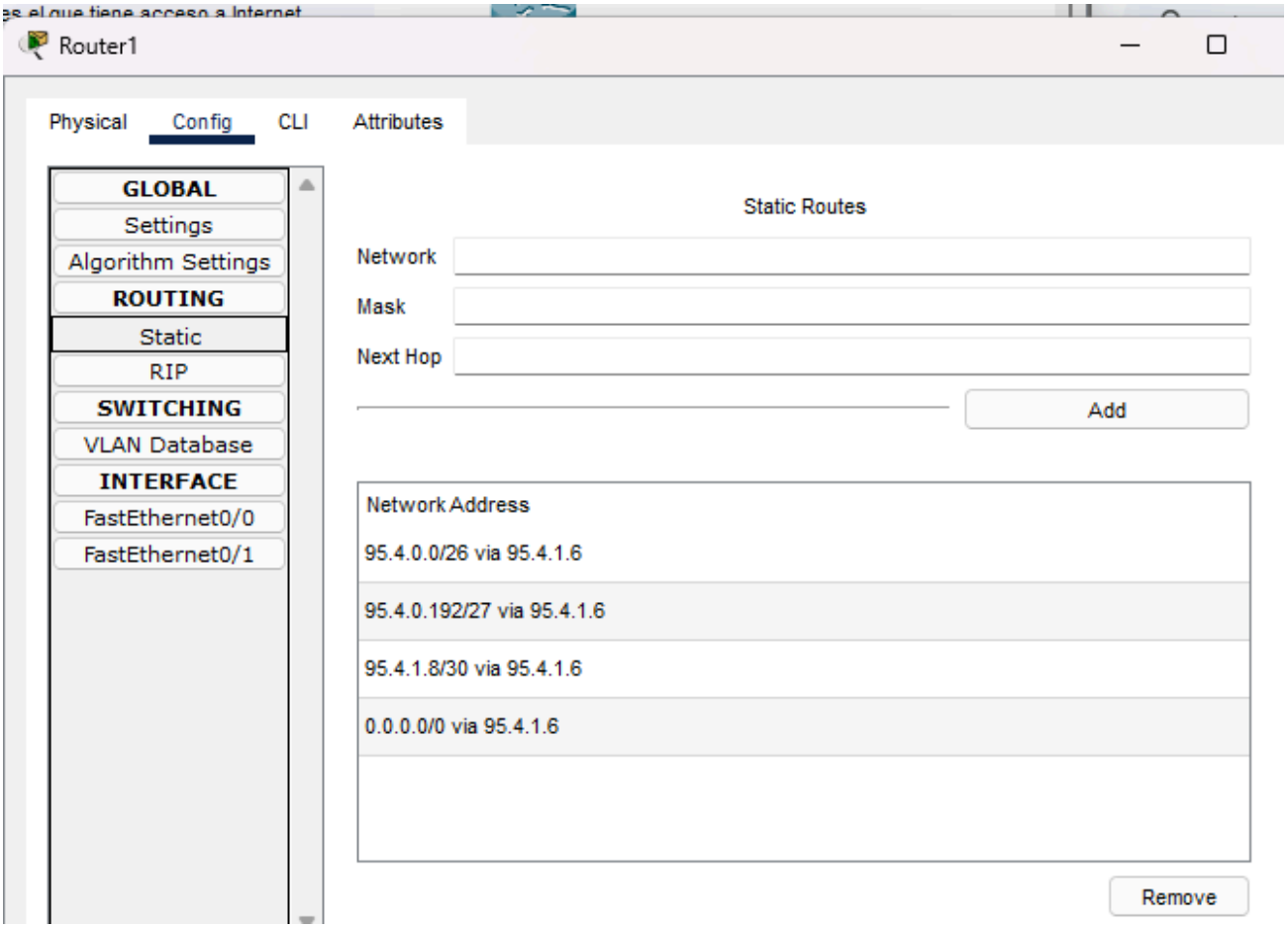
configure terminal

ip route 95.4.0.0 255.255.255.192 95.4.1.6

ip route 95.4.0.192 255.255.255.224 95.4.1.6

ip route 95.4.1.8 255.255.255.252 95.4.1.6

ip route 0.0.0.0 0.0.0.0 95.4.1.6




```
Router#enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 95.4.0.0 255.255.255.192 95.4.1.6
Router(config)#ip route 95.4.0.192 255.255.255.224 95.4.1.6
Router(config)#ip route 95.4.1.8 255.255.255.252 95.4.1.6
Router(config)#ip route 0.0.0.0 0.0.0.0 95.4.1.6
Router(config)#
```

Router2

enable

configure terminal

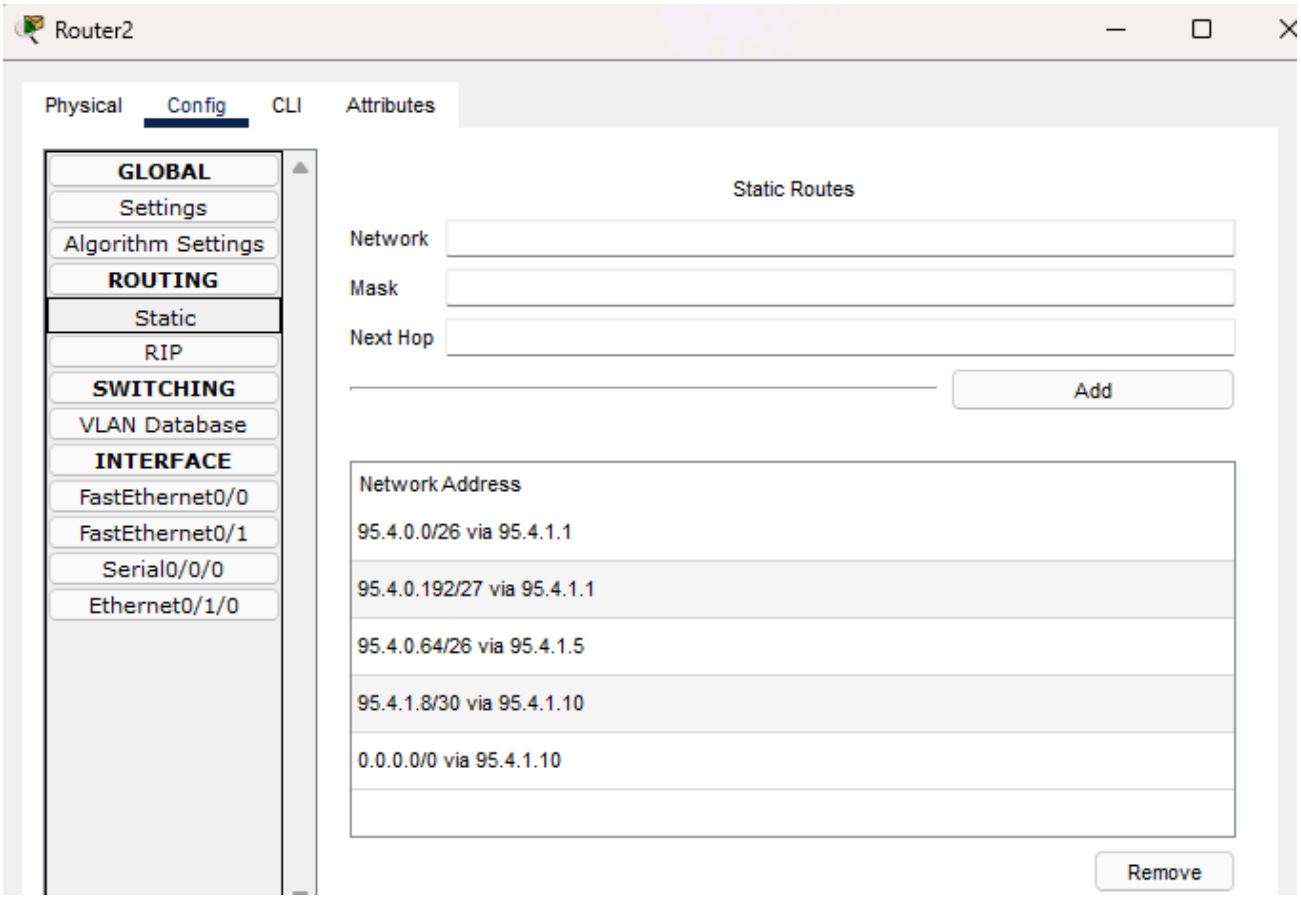
ip route 95.4.0.0 255.255.255.192 95.4.1.1

ip route 95.4.0.192 255.255.255.224 95.4.1.1

ip route 95.4.0.64 255.255.255.192 95.4.1.5

ip route 95.4.1.8 255.255.255.252 95.4.1.10

ip route 0.0.0.0 0.0.0.0 95.4.1.10



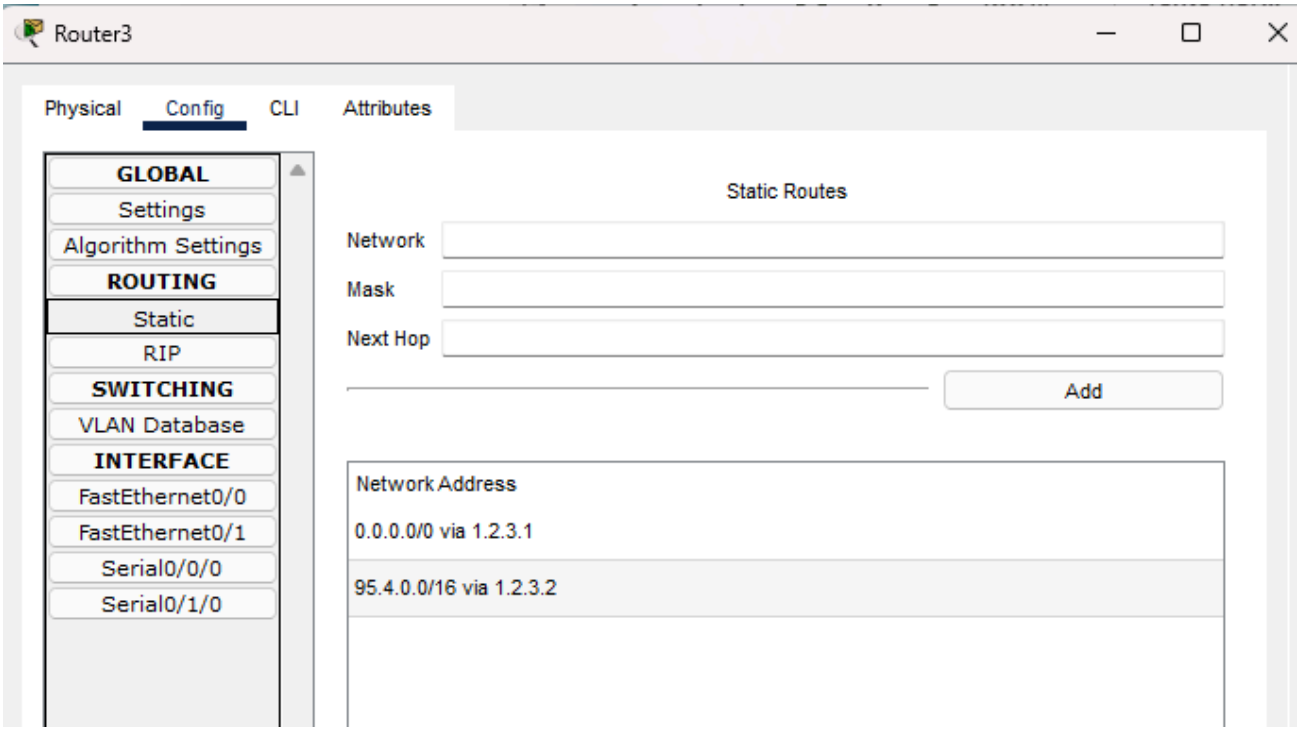

```
Router#enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 95.4.0.0 255.255.255.192 95.4.1.1
Router(config)#ip route 95.4.0.192 255.255.255.224 95.4.1.1
Router(config)#ip route 95.4.0.64 255.255.255.192 95.4.1.5
Router(config)#ip route 95.4.1.8 255.255.255.252 95.4.1.10
Router(config)#ip route 0.0.0.0 0.0.0.0 95.4.1.10
Router(config)#
Router(config)#
```

Router3

enable

configure terminal

ip route 95.4.0.0 255.255.0.0 1.2.3.2




```
Router#enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 95.4.0.0 255.255.0.0 1.2.3.2
Router(config)#
```

Paso 4 – Ping de comprobación

Una vez configuradas todas las interfaces y rutas, es necesario realizar pruebas de conectividad mediante comandos **ping**. Si las respuestas son exitosas, se confirma que la comunicación entre los dispositivos está funcionando correctamente.

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC2	PC1	ICMP		0.000	N	0	(edit)	
	Successful	PC2	PC0	ICMP		0.000	N	1	(edit)	
	Successful	PC3	PC0	ICMP		0.000	N	2	(edit)	
	Successful	PC1	Server0	ICMP		0.000	N	3	(edit)	

También se procederá a verificar si los dispositivos tienen acceso a Internet, como parte de la comprobación de conectividad externa.

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC2	ISP (Salida...	ICMP		0.000	N	0	(edit)	(delete)
	Successful	PC3	ISP (Salida...	ICMP		0.000	N	1	(edit)	(delete)
	Successful	PC1	ISP (Salida...	ICMP		0.000	N	2	(edit)	(delete)
	Successful	PC0	ISP (Salida...	ICMP		0.000	N	3	(edit)	(delete)
	Successful	Server0	ISP (Salida...	ICMP		0.000	N	4	(edit)	(delete)

2. Webgrafías:

- Jonay, los compañeros, 3 vídeos de internet en 360p, y dios

3. Conclusión:

- No quiero saber nada más de redes hasta que vuelva a entrar el año que viene al ciclo.