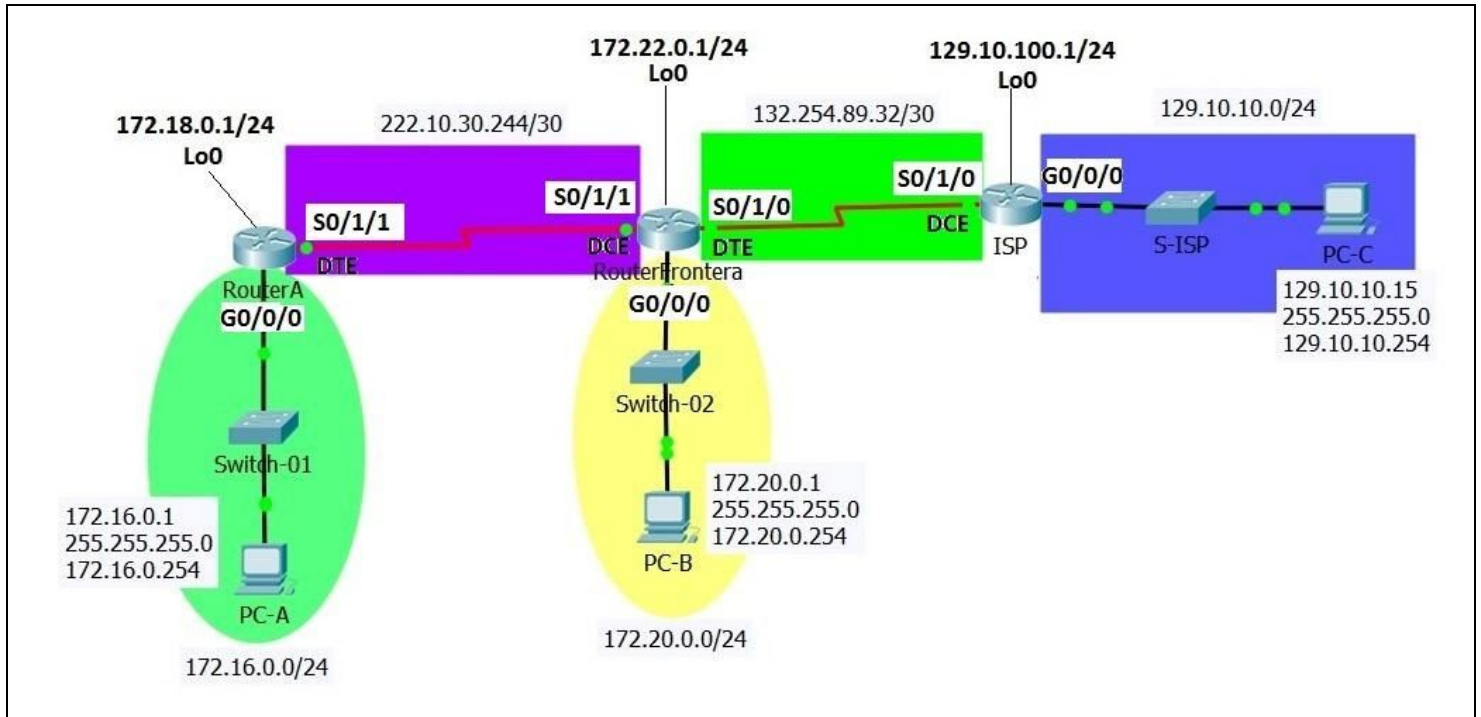


Instituto Tecnológico y de Estudios Superiores de Monterrey Campus Querétaro Interconexión de Redes

Práctica de configuración de OSPF área 0

Utiliza el siguiente diseño de red y realiza la configuración de todos los equipos de interconexión y equipos terminales. En caso de cualquier duda con el diseño de red o con la configuración que debes realizar, consulta inmediatamente a tu profesor.



Tu tarea es realizar las configuraciones de los equipos terminales y de cada router para tener comunicación entre las estaciones de la red.

Para lograr la conectividad, se sugiere proceder con el siguiente orden:

- Configura el nombre correspondiente de cada router
- Configura los password de **line con 0** y **line vty 0 4** con palabra clave cisco
- Establece el password del **enable** como class
- Activa el servicio de encriptación de passwords
- Desactiva el servicio del **domain lookup**
- Configurar un **banner** de prevención de acceso al router que incluya tu nombre y cuenta de correo como datos del administrador del sistema.
- Configura las interfaces seriales, los **giga Ethernet** y los **Loopbacks** de cada router de acuerdo a la información proporcionada en la tabla
- Configura (de acuerdo a los datos de la tabla) la dirección IPv4, mascarâ y puerta de enlace de cada equipo terminal

NOTA: Puedes utilizar un editor simple de texto (como NotePAD de Windows) para agilizar el proceso de configuración de los routers.

Device	Interface	IP Address	Subnet Mask	Default Gateway
ISP	G0/0/0	129.10.10.254	255.255.255.0	N/A
	Lo0	129.10.100.1	255.255.255.0	N/A
	S0/1/0	132.254.89.33	255.255.255.252	N/A
RouterFrontera	S0/1/0	132.254.89.34	255.255.255.252	N/A
	S0/1/1	222.10.30.245	255.255.255.252	N/A
	G0/0/0	172.20.0.254	255.255.255.0	N/A
	Lo0	172.22.0.1	255.255.255.0	N/A
	S0/1/1	222.10.30.246	255.255.255.252	N/A
	G0/0/0	172.16.0.254	255.255.255.0	N/A
RouterA	Lo0	172.18.0.1	255.255.255.0	N/A
	NIC	172.16.0.1	255.255.255.0	172.16.0.254
	NIC	172.20.0.1	255.255.255.0	172.20.0.254
PC-C	NIC	129.10.10.15	255.255.255.0	129.10.10.254

- i. Desde cada equipo terminal realiza un ping a sus respectivas puertas de enlace. ¿Es el ping de la PC-A a su puerta de enlace exitoso? **sí** ¿Es el ping de la PC-B a su puerta de enlace exitoso? **sí** ¿Es el ping de la PC-C a su puerta de enlace exitoso? **sí** (En caso de que algún ping no sea exitoso, revisa las configuraciones realizadas)

Para realizar la configuración del protocolo de ruteo OSPF en cada router, ejecuta la secuencia de comandos que a continuación se indican para el router correspondiente:

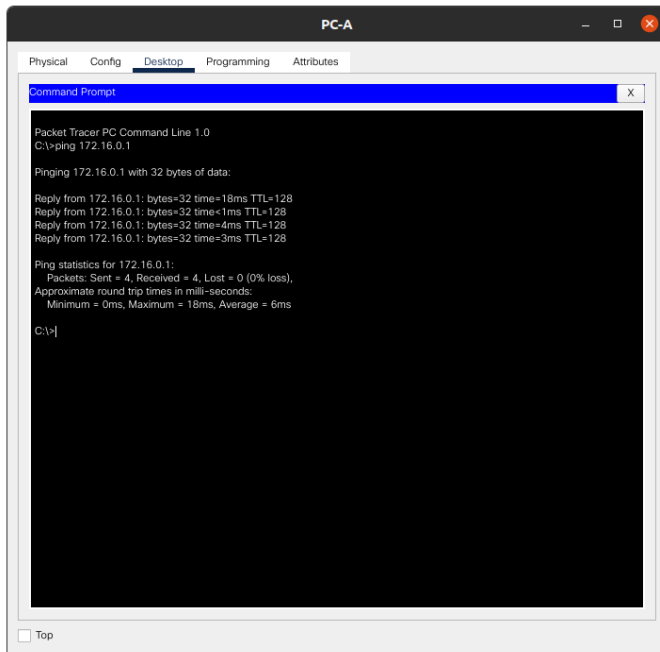
```
RouterA(config)# router OSPF 1
RouterA(config)# network 172.16.0.0 0.0.0.255 area 0
RouterA(config)# network 172.18.0.0 0.0.0.255 area 0
RouterA(config)# network 222.10.30.244 0.0.0.3 area 0
```

```
RouterFrontera(config)# ip route 0.0.0.0 0.0.0.0 S0/1/0
RouterFrontera(config)# router OSPF 1
RouterFrontera(config)# network 172.20.0.0 0.0.0.255 area 0
RouterFrontera(config)# network 172.22.0.0 0.0.0.255 area 0
RouterFrontera(config)# network 222.10.30.244 0.0.0.3 area 0
RouterFrontera(config)# default-information originate
```

```
ISP(config)# ip route 172.16.0.0 255.255.255.0 S0/1/0
ISP(config)# ip route 172.18.0.0 255.255.255.0 S0/1/0
ISP(config)# ip route 172.20.0.0 255.255.255.0 S0/1/0
ISP(config)# ip route 172.22.0.0 255.255.255.0 S0/1/0
```

Para comprobar la configuración realizada, ejecuta un ***ping*** desde cada PC a los otros equipos terminales de la red y desde cada PC un ***telnet*** a los Loopbacks del diseño de red. Si todas las pruebas de conectividad son exitosas, tu configuración está correcta. En caso contrario, deberás corregir la falla de configuración correspondiente.

Ping PCA RouterA



```
PC-A
Physical Config Desktop Programming Attributes
Command Prompt
Packet Tracer PC Command Line 1.0
C:\>ping 172.16.0.1

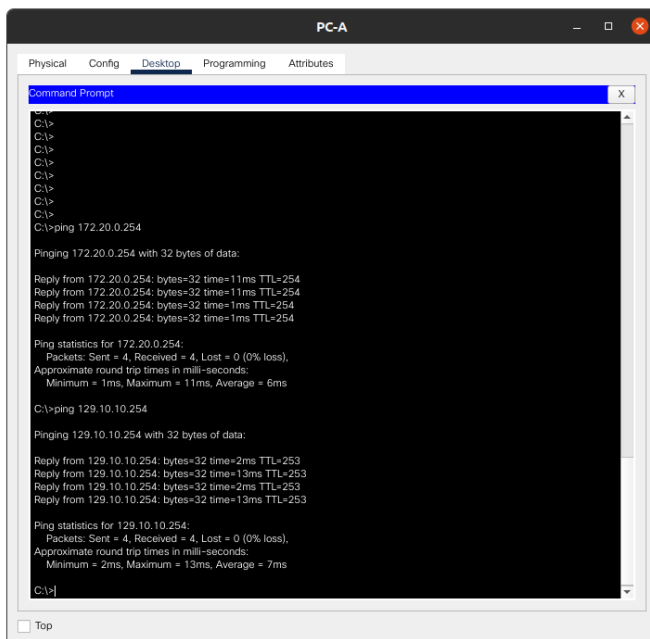
Pinging 172.16.0.1 with 32 bytes of data:

Reply from 172.16.0.1: bytes=32 time=18ms TTL=128
Reply from 172.16.0.1: bytes=32 time=1ms TTL=128
Reply from 172.16.0.1: bytes=32 time=4ms TTL=128
Reply from 172.16.0.1: bytes=32 time=3ms TTL=128

Ping statistics for 172.16.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 18ms, Average = 6ms

C:\>
```

Ping PCA a PCB y PCC



```
PC-A
Physical Config Desktop Programming Attributes
Command Prompt
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>ping 172.20.0.254

Pinging 172.20.0.254 with 32 bytes of data:

Reply from 172.20.0.254: bytes=32 time=11ms TTL=254
Reply from 172.20.0.254: bytes=32 time=11ms TTL=254
Reply from 172.20.0.254: bytes=32 time=1ms TTL=254
Reply from 172.20.0.254: bytes=32 time=1ms TTL=254

Ping statistics for 172.20.0.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 11ms, Average = 6ms

C:\>ping 129.10.10.254

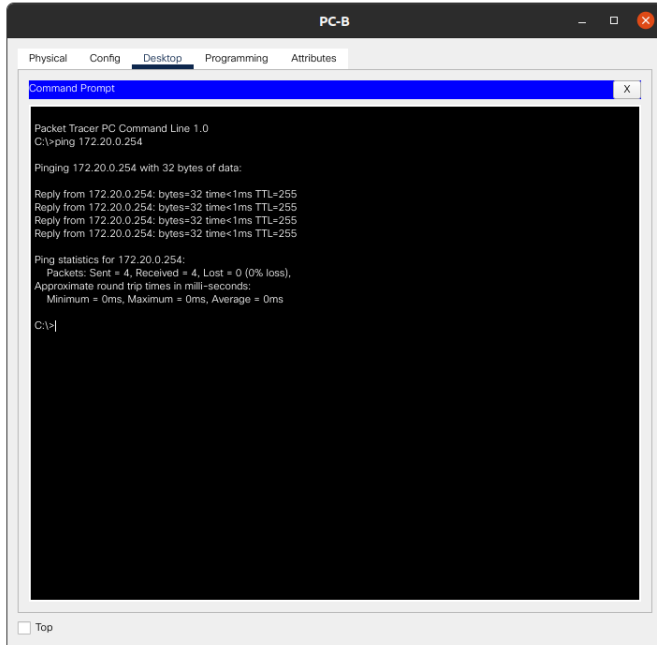
Pinging 129.10.10.254 with 32 bytes of data:

Reply from 129.10.10.254: bytes=32 time=2ms TTL=253
Reply from 129.10.10.254: bytes=32 time=13ms TTL=253
Reply from 129.10.10.254: bytes=32 time=2ms TTL=253
Reply from 129.10.10.254: bytes=32 time=13ms TTL=253

Ping statistics for 129.10.10.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 13ms, Average = 7ms

C:\>
```

Ping PCB RouterFrontera



```
PC-B
Physical Config Desktop Programming Attributes
Command Prompt
Packet Tracer PC Command Line 1.0
C:\>ping 172.20.0.254

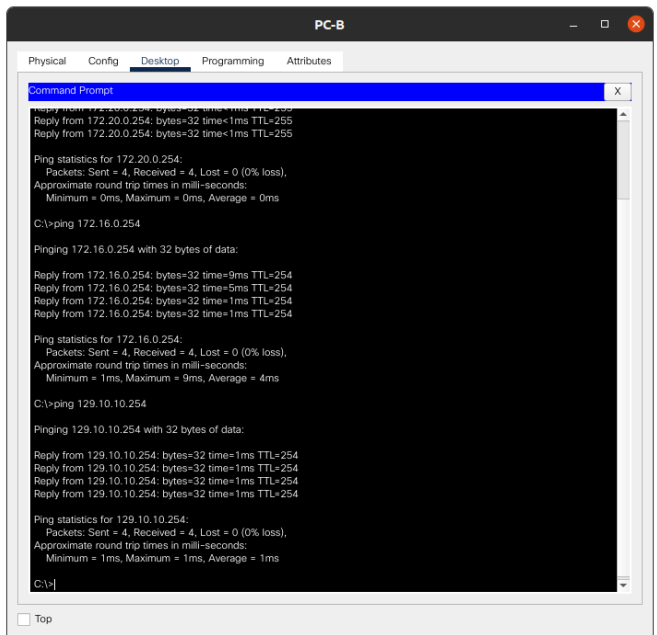
Pinging 172.20.0.254 with 32 bytes of data:

Reply from 172.20.0.254: bytes=32 time<1ms TTL=255
Reply from 172.20.0.254: bytes=32 time<1ms TTL=255
Reply from 172.20.0.254: bytes=32 time<1ms TTL=255
Reply from 172.20.0.254: bytes=32 time<1ms TTL=255

Ping statistics for 172.20.0.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Ping PCB a PCA y PCC



```
PC-B
Physical Config Desktop Programming Attributes
Command Prompt
Reply from 172.20.0.254: bytes=32 time<1ms TTL=255
Reply from 172.20.0.254: bytes=32 time<1ms TTL=255
Reply from 172.20.0.254: bytes=32 time<1ms TTL=255

Ping statistics for 172.20.0.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 172.16.0.254

Pinging 172.16.0.254 with 32 bytes of data:

Reply from 172.16.0.254: bytes=32 time=9ms TTL=254
Reply from 172.16.0.254: bytes=32 time=5ms TTL=254
Reply from 172.16.0.254: bytes=32 time=1ms TTL=254
Reply from 172.16.0.254: bytes=32 time=1ms TTL=254

Ping statistics for 172.16.0.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 9ms, Average = 4ms

C:\>ping 129.10.10.254

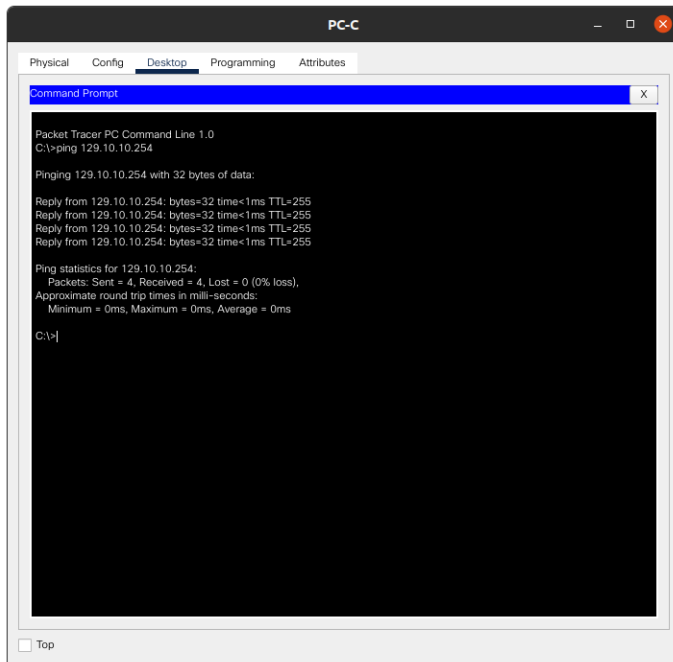
Pinging 129.10.10.254 with 32 bytes of data:

Reply from 129.10.10.254: bytes=32 time=1ms TTL=254
Reply from 129.10.10.254: bytes=32 time=1ms TTL=254
Reply from 129.10.10.254: bytes=32 time=1ms TTL=254
Reply from 129.10.10.254: bytes=32 time=1ms TTL=254

Ping statistics for 129.10.10.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 1ms, Average = 1ms

C:\>
```

Ping PCC ISP



```
PC-C
Physical Config Desktop Programming Attributes
Command Prompt
Packet Tracer PC Command Line 1.0
C:\>ping 129.10.10.254

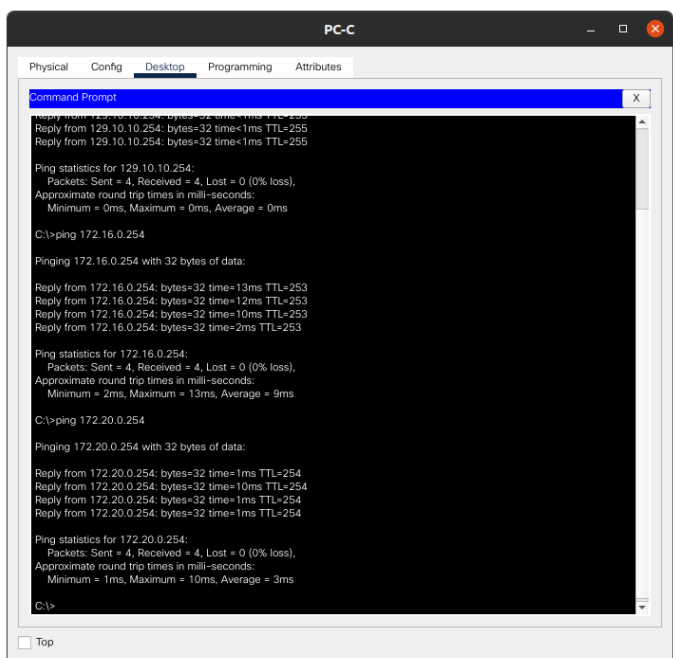
Pinging 129.10.10.254 with 32 bytes of data:

Reply from 129.10.10.254: bytes=32 time<1ms TTL=255
Reply from 129.10.10.254: bytes=32 time<1ms TTL=255
Reply from 129.10.10.254: bytes=32 time<1ms TTL=255
Reply from 129.10.10.254: bytes=32 time<1ms TTL=255

Ping statistics for 129.10.10.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Ping PCC a PCA y PCB



```
PC-C
Physical Config Desktop Programming Attributes
Command Prompt
Reply from 129.10.10.254: bytes=32 time<1ms TTL=255
Reply from 129.10.10.254: bytes=32 time<1ms TTL=255
Reply from 129.10.10.254: bytes=32 time<1ms TTL=255

Ping statistics for 129.10.10.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 172.16.0.254

Pinging 172.16.0.254 with 32 bytes of data:

Reply from 172.16.0.254: bytes=32 time=13ms TTL=253
Reply from 172.16.0.254: bytes=32 time=12ms TTL=253
Reply from 172.16.0.254: bytes=32 time=10ms TTL=253
Reply from 172.16.0.254: bytes=32 time=2ms TTL=253

Ping statistics for 172.16.0.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 13ms, Average = 9ms

C:\>ping 172.20.0.254

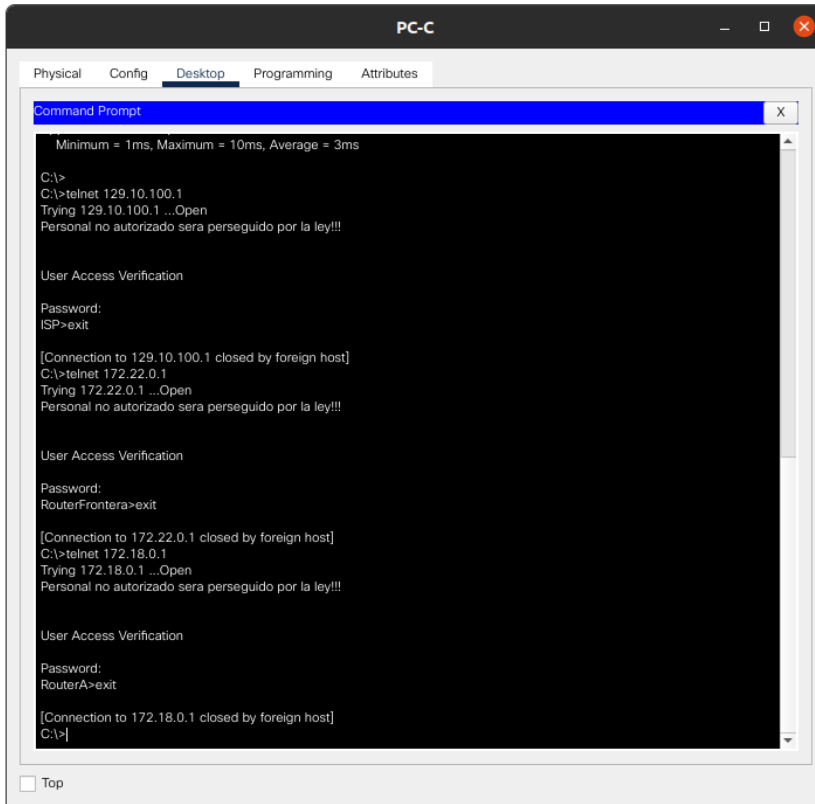
Pinging 172.20.0.254 with 32 bytes of data:

Reply from 172.20.0.254: bytes=32 time=1ms TTL=254
Reply from 172.20.0.254: bytes=32 time=10ms TTL=254
Reply from 172.20.0.254: bytes=32 time=1ms TTL=254
Reply from 172.20.0.254: bytes=32 time=1ms TTL=254

Ping statistics for 172.20.0.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 10ms, Average = 3ms

C:\>
```

Telnet PCC a todos los loopback



```
PC-C
Physical Config Desktop Programming Attributes
Command Prompt
Minimum = 1ms, Maximum = 10ms, Average = 3ms
C:\>
C:\>telnet 129.10.100.1
Trying 129.10.100.1 ...Open
Personal no autorizado sera perseguido por la ley!!!

User Access Verification

Password:
ISP>exit

[Connection to 129.10.100.1 closed by foreign host]
C:\>telnet 172.22.0.1
Trying 172.22.0.1 ...Open
Personal no autorizado sera perseguido por la ley!!!

User Access Verification

Password:
RouterFrontera>exit

[Connection to 172.22.0.1 closed by foreign host]
C:\>telnet 172.18.0.1
Trying 172.18.0.1 ...Open
Personal no autorizado sera perseguido por la ley!!!

User Access Verification

Password:
RouterA>exit

[Connection to 172.18.0.1 closed by foreign host]
C:\>
```

Configuración RouterA

```
enable
config t
```

```
hostname RouterA
```

```
service password-enc
no ip domain-lookup
```

```
banner motd #
Personal no autorizado sera perseguido por la ley!!!#
```

```
line con 0
password cisco
login
loggin sync
```

```
line vty 0 4
password cisco
login
loggin sync
```

```
enable password class
```

```
int s0/1/1
desc Interfaz que se conecta con el Router Frontera
```

```
ip add 222.10.30.246 255.255.255.252
no shut
```

```
in g0/0/0
desc Interfaz con la red 172.16.0.0
ip add 172.16.0.254 255.255.255.0
no shut
```

```
int lo0
desc Interfaz loopback
ip add 172.18.0.1 255.255.255.0
no shut
```

```
router OSPF 1
network 172.16.0.0 0.0.0.255 area 0
network 172.18.0.0 0.0.0.255 area 0
network 222.10.30.244 0.0.0.3 area 0
```

Configuración RouterFrontera

```
enable
config t
```

```
hostname RouterFrontera
```

```
service password-enc
no ip domain-lookup
```

```
banner motd #
Personal no autorizado sera perseguido por la ley!!!#
```

```
line con 0
password cisco
login
loggin sync
```

```
line vty 0 4
password cisco
login
loggin sync
```

```
enable password class
```

```
int s0/1/0
desc Interfaz que se conecta con el ISP
ip add 132.254.89.34 255.255.255.252
no shut
```

```
int s0/1/1
desc Interfaz que se conecta con el RouterA
ip add 222.10.30.245 255.255.255.252
clock rate 128000
no shut
```

```
in g0/0/0
desc Interfaz con la red 172.20.0.0
ip add 172.20.0.254 255.255.255.0
```

```
no shut
```

```
int lo0
desc Interfaz loopback
ip add 172.22.0.1 255.255.255.0
no shut
```

```
ip route 0.0.0.0 0.0.0.0 s0/1/0
router OSPF 1
network 172.20.0.0 0.0.0.255 area 0
network 172.22.0.0 0.0.0.255 area 0
network 222.10.30.244 0.0.0.3 area 0
default-information originate
```

Configuración ISP

```
enable
config t
```

```
hostname RouterFrontera
```

```
service password-enc
no ip domain-lookup
```

```
banner motd #
Personal no autorizado sera perseguido por la ley!!!#
```

```
line con 0
password cisco
login
loggin sync
```

```
line vty 0 4
password cisco
login
loggin sync
```

```
enable password class
```

```
int s0/1/0
desc Interfaz que se conecta con el ISP
ip add 132.254.89.34 255.255.255.252
no shut
```

```
int s0/1/1
desc Interfaz que se conecta con el RouterA
ip add 222.10.30.245 255.255.255.252
clock rate 128000
no shut
```

```
in g0/0/0
desc Interfaz con la red 172.20.0.0
ip add 172.20.0.254 255.255.255.0
no shut
```

```
int lo0
```



```
desc Interfaz loopback  
ip add 172.22.0.1 255.255.255.0  
no shut
```

```
ip route 0.0.0.0 0.0.0.0 s0/1/0  
router OSPF 1  
network 172.20.0.0 0.0.0.255 area 0  
network 172.22.0.0 0.0.0.255 area 0  
network 222.10.30.244 0.0.0.3 area 0  
default-information originate
```

