

ACTIVIDAD 1º TRIMESTRE: PLANIFICACIÓN DE REDES.

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1º ASIR.

1º PARTE

RED: 192.168.1.0 --> CLASE C /24

- MASCARA DE RED: 255.255.255.0
- DIRECCION DE RED: 192.168.1.0
- DIRECCION DE BROADCAST: 192.168.1.255
- DIRECCION ASIGNABLE DE HOST: 192.168.1.1 A 192.168.1.254
- MAXIMA DE HOST ASIGNABLES: $2^8 - 2 = 254$ host máximos

Ahora que ya tengo información general de la red dada, se me piden **8 SUBREDES**

UTILIZABLES, por ello debo de tomar algunos BITS del HOST:

De los 8 BITS del Host, tomaremos 3: porque $2^3=8$, suficiente para las 8 subredes que me piden

- NUEVA MASCARA: **/24+3=27** (Mascara anterior+ host tomados= nueva mascara). Visualmente:

1111111.1111111.1111111.00000000 -----> 1111111.1111111.1111111.11100000

DECIMAL: 255.255.255.224

PREFIJO: **/27**

- HOST ASIGNABLES: Sobraron 5 BITS del HOST por ello $2^5 - 2 = 30$ Host asignables

CALCULO DE SALTO: **256-224=32**

| SUBRED | DIRECCIÓN DE RED | IP INICIAL | IP FINAL | BROADCAST |
|--------|------------------|---------------|---------------|---------------|
| 1 | 192.168.1.0 | 192.168.1.1 | 192.168.1.30 | 192.168.1.31 |
| 2 | 192.168.1.32 | 192.168.1.33 | 192.168.1.62 | 192.168.1.63 |
| 3 | 192.168.1.64 | 192.168.1.65 | 192.168.1.94 | 192.168.1.95 |
| 4 | 192.168.1.96 | 192.168.1.97 | 192.168.1.126 | 192.168.1.127 |
| 5 | 192.168.1.128 | 192.168.1.129 | 192.168.1.158 | 192.168.1.159 |
| 6 | 192.168.1.160 | 192.168.1.161 | 192.168.1.190 | 192.168.1.191 |
| 7 | 192.168.1.192 | 192.168.1.193 | 192.168.1.222 | 192.168.1.223 |
| 8 | 192.168.1.224 | 192.168.1.225 | 192.168.1.254 | 192.168.1.255 |

2DA PARTE (CPT)

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#ip address 192.168.1.1 255.255.255.224
Router(config-if)#no shutdown
Router(config-if)#
$LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up
```

COMANDO DE CLI
DE ROUTER

COMPROBACION EN PING

PC0

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\> ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

PC0 --> PC1

PING ENTRE HOST DE LA MISMA SUBRED

PC0

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\> ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\> ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

PC0 --> ROUTER

PING A LAS PUERTAS DE ENLACE

PC0

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\> ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\> ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\> ping 168.164.1.34

Pinging 168.164.1.34 with 32 bytes of data:
Reply from 192.168.1.1: Destination host unreachable.

Ping statistics for 168.164.1.34:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>ping 192.168.1.34

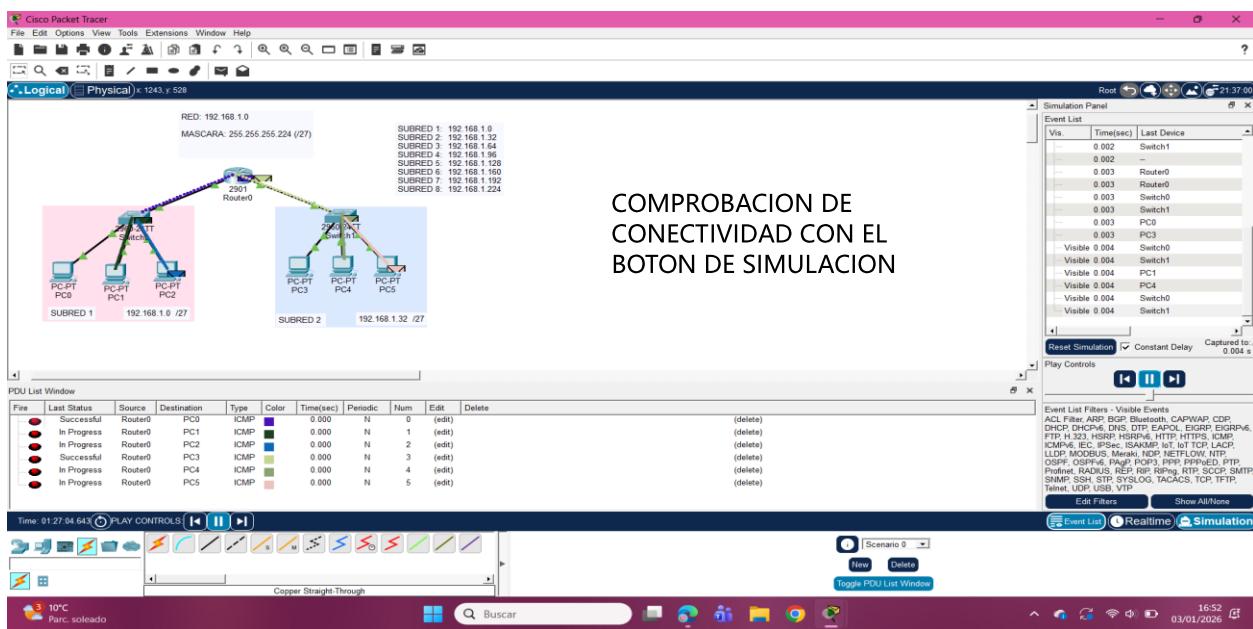
Pinging 192.168.1.34 with 32 bytes of data:
Reply from 192.168.1.34: bytes=32 time<1ms TTL=127
Reply from 192.168.1.34: bytes=32 time<1ms TTL=127
Reply from 192.168.1.34: bytes=32 time=7ms TTL=127
Reply from 192.168.1.34: bytes=32 time=1ms TTL=127

Ping statistics for 192.168.1.34:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 7ms, Average = 2ms

C:\>
```

PING ENTRE
SUBREDES
DISTINTAS

PC0 (SR 1)
-->
PC3 (SR 2)



Primeramente he desglosado la red 192.168.1.0, determinando que era CLASE C con mascara /24, mascara de red, dirección de red, dirección de broadcast, dirección y máximos de host. Al tener determinar la red principal, pase a realizar lo pedido a 8 SUBREDES UTILIZABLES. Por ello, hice el proceso de tomar BITS del HOST (3), como consecuencia, la mascara se ha convertido en /27 (255.255.255.224). Luego he calculado el salto para realizar la tabla (256-224=32). Seguido de la tabla he podido empezar con CISCO, insertando ROUTER, 2 SWITCH (ya que he demostrado 2 subredes) y 3 PC en cada subred. He empezado con la asignación de IP en ROUTER y PC. Luego he hecho la comprobación en PING y en el simulador del programa.