

Packet Tracer - Troubleshooting Challenge - Use Documentation to Solve Issues

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Addressing Table

Device	Interface	Device Type (router, switch, host)	IP Address	Subnet Mask	Default Gateway
PC1					
PC2	NIC	host	192.168.3.50	255.255.255.0	192.168.3.1
PC3	NIC	host	192.168.4.115	255.255.255.0	192.168.4.1
PC4	NIC	host	192.168.5.83	255.255.255.128	192.168.5.1
PC5	NIC	host	192.168.5.227	255.255.255.128	192.168.5.129
PC6	NIC	host	192.168.2.48	255.255.255.224	192.168.2.33
PC7	NIC	host	192.168.2.67	255.255.255.224	192.168.2.65
Hub	G0/0/0	Router	192.0.2.1	255.255.255.252	
	S0/1/0	Router	192.168.0.1	255.255.255.252	
	/1/1	Router	192.168.0.5	255.255.255.252	
	S0/2/0	Router	192.168.0.9	255.255.255.252	
	S0/2/1	Router	192.168.0.13	255.255.255.252	
Branch-1	G0/0/0	Router	192.168.1.1	255.255.255.0	
	S0/1/0	Router	192.168.0.2	255.255.255.252	
Branch-2	G0/0/0	Router	192.168.2.33	255.255.255.224	
	S0/1/0	Router	192.168.0.6	255.255.255.252	
Factory	G0/0/0	Router	192.168.3.1	255.255.255.0	
	G0/0/1	Router	192.168.4.1	255.255.255.0	
	S0/1/0	Router	192.168.0.14	255.255.255.252	
HQ	G0/0/0.1	Router	192.168.6.1	255.255.255.0	
	G0/0/0.5	Router	192.168.5.1	255.255.255.128	
	G0/0/0.10	Router	192.168.5.128	255.255.255.128	
	S0/1/0	Router	192.168.0.10	255.255.255.252	

Objectives

In this lab, you use network documentation to identify and fix network communications problems.

- Use various techniques and tools to identify connectivity issues.
- Use documentation to guide troubleshooting efforts.
- Identify specific network problems.
- Implement solutions to network communication problems.
- Verify network operation.

Background / Scenario

In this activity, you will use the documentation that you created in the **Packet Tracer - Troubleshooting Challenge - Document the Network** activity to guide network troubleshooting efforts.

It has been discovered that the network that you worked with in the previous PT activity has developed communication problems. Some hosts are unable to ping other hosts and the internet server. It is your job to determine what the issues are and to locate and repair them.

Network issues could exist in any device. Be sure to check for comprehensive errors:

- Addressing configuration
- Interface activation
- Routing
- NAT

Instructions

Passwords for all devices are VTY: **cisco**, Enable secret: **class**

Part 1: Assess Connectivity

All hosts should be able to ping each other and the internet server. Determine if this requirement is met. If not, identify which hosts and networks should be further investigated.

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Ping de PC1 a su default Gateway:

The screenshot shows the Cisco Packet Tracer interface with three PCs (PC1, PC2, PC3) connected in a star topology. PC1 is highlighted, and its configuration window is open. The Command Prompt shows the following configuration and a successful ping:

```
192.168.1.1
DHCP Servers.....: 0.0.0.0
DHCPv6 IAID.....: 
DHCPv6 Client DUID.....: 00-01-00-01-7E-32-AB-6D-00-0C-CF-0A-D7-37
DNS Servers.....: 
192.168.5.252

Bluetooth Connection:

Connection-specific DNS Suffix...:
Physical Address.....: 00E0.F7D3.4D0A
Link-local IPv6 Address.....: ::
IPv6 Address.....: ::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: 
0.0.0.0
0.0.0.0
DHCP Servers.....: 0.0.0.0
DHCPv6 IAID.....: 
DHCPv6 Client DUID.....: 00-01-00-01-7E-32-AB-6D-00-0C-CF-0A-D7-37
DNS Servers.....: 
192.168.5.252

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

Ping desde Branch-1 a 192.168.0.1:

The screenshot shows the Cisco Packet Tracer interface with three PCs (PC1, PC2, PC3) connected in a star topology. PC1 is highlighted, and its configuration window is open. The Command Prompt shows the following configuration and a successful ping:

```
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
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
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:\>telnet 192.168.1.1
Trying 192.168.1.1 ...Open

User Access Verification

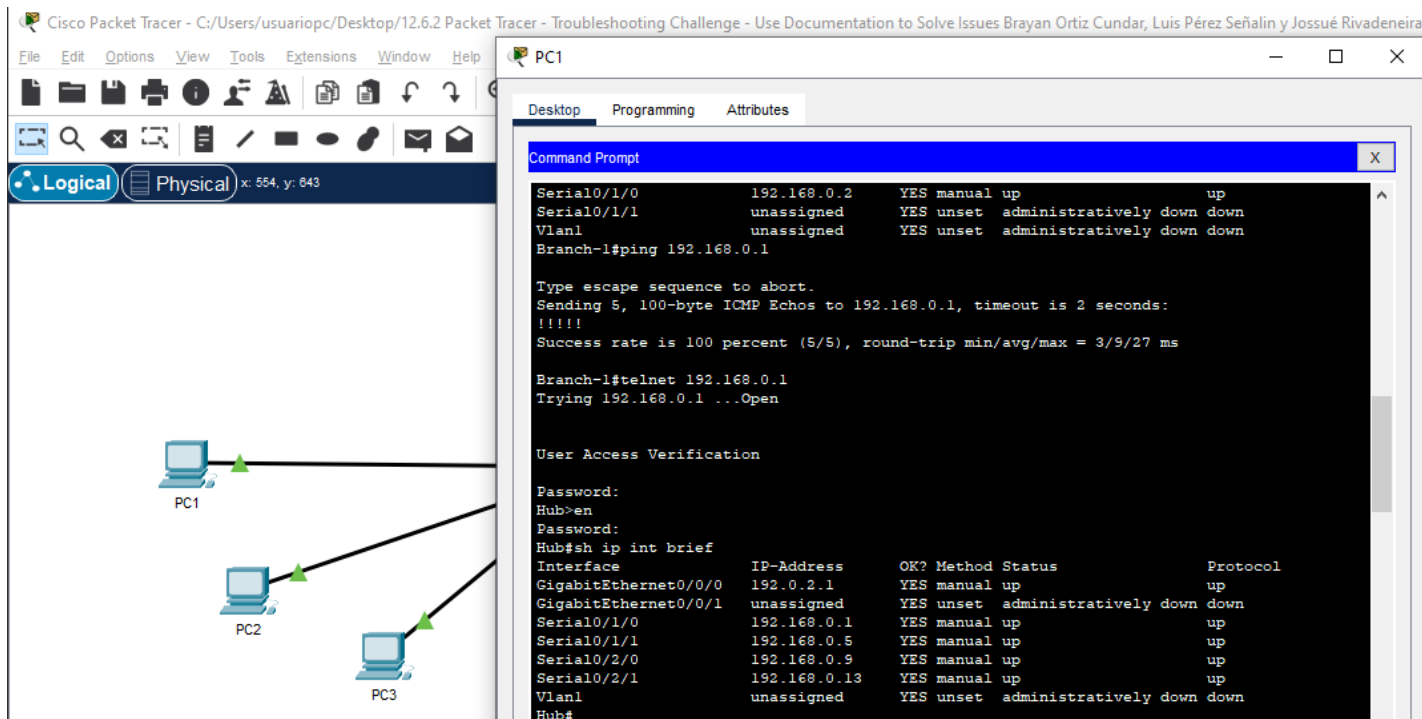
Password:
Branch-1>en
Password:
Branch-1#sh ip int brief
Interface    IP-Address      OK? Method Status        Protocol
GigabitEthernet0/0/0  192.168.1.1    YES manual up            up
GigabitEthernet0/0/1  unassigned     YES unset  administratively down down
Serial0/1/0      192.168.0.2    YES manual up            up
Serial0/1/1      unassigned     YES unset  administratively down down
Vlan1         unassigned     YES unset  administratively down down
Branch-1#ping 192.168.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 3/9/27 ms

Branch-1#
```

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Sabemos que en el serial de Branch-1 hay la dirección 192.168.0.2 por lo que debería haber otra dirección con 0.1:



The screenshot shows the Cisco Packet Tracer interface. On the left, a network diagram displays three PCs (PC1, PC2, PC3) connected to a central hub. PC1 is connected to the top port, PC2 to the middle, and PC3 to the bottom. On the right, a 'Command Prompt' window for PC1 is open, showing the following output:

```
Serial0/1/0      192.168.0.2    YES manual up      up
Serial0/1/1      unassigned    YES unset  administratively down down
Vlan1            unassigned    YES unset  administratively down down
Branch-1#ping 192.168.0.1

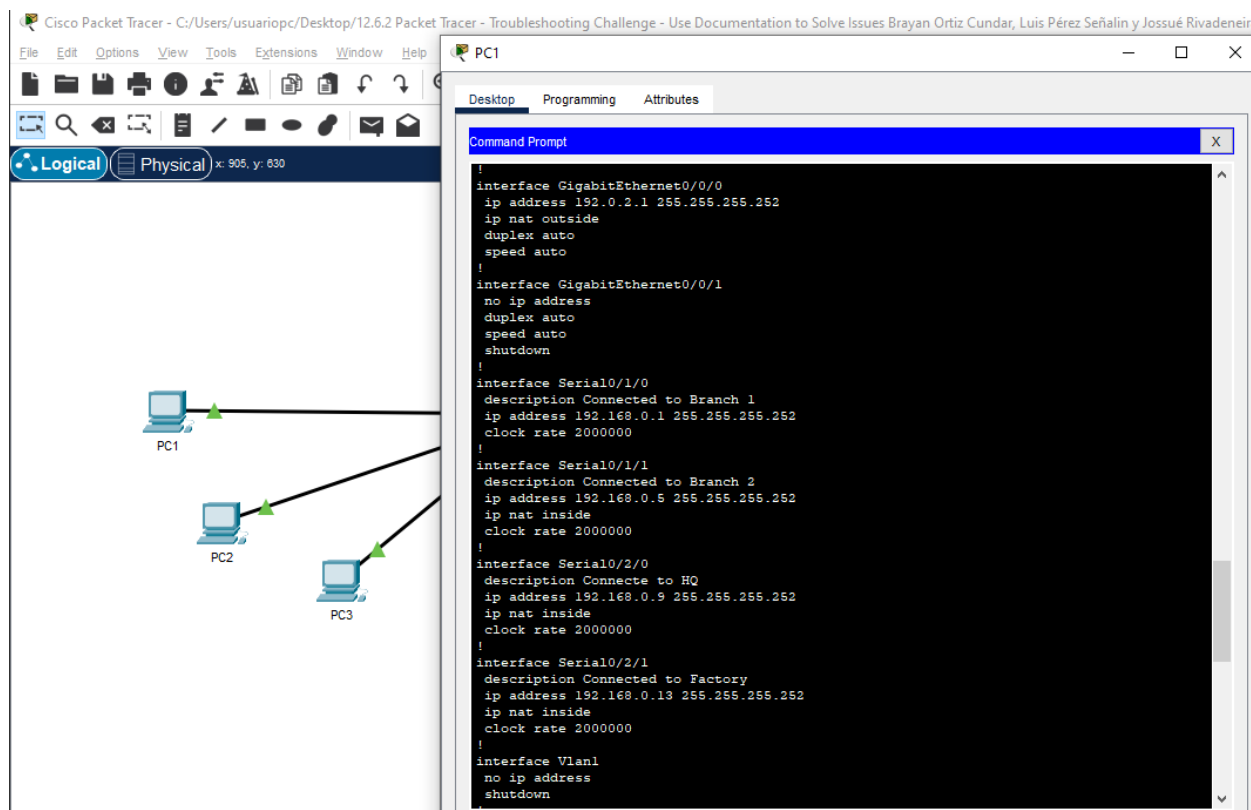
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 3/9/27 ms

Branch-1#telnet 192.168.0.1
Trying 192.168.0.1 ...Open

User Access Verification

Password:
Hub>en
Password:
Hub#sh ip int brief
Interface        IP-Address      OK? Method Status      Protocol
GigabitEthernet0/0/0  192.0.2.1      YES manual up          up
GigabitEthernet0/0/1  unassigned      YES unset  administratively down down
Serial0/1/0        192.168.0.1    YES manual up          up
Serial0/1/1        192.168.0.5    YES manual up          up
Serial0/2/0        192.168.0.9    YES manual up          up
Serial0/2/1        192.168.0.13   YES manual up          up
Vlan1             unassigned      YES unset  administratively down down
Hub#
```

Ahora que conocemos varias de las direcciones que se encuentran en el hub, se usará el comando “sh running-config” para determinar más sobre las redes que contiene el Hub:



The screenshot shows the Cisco Packet Tracer interface. On the left, the same network diagram as before is visible. On the right, a 'Command Prompt' window for PC1 is open, showing the output of the 'show running-config' command:

```
!
interface GigabitEthernet0/0/0
ip address 192.0.2.1 255.255.255.252
ip nat outside
duplex auto
speed auto
!
interface GigabitEthernet0/0/1
no ip address
duplex auto
speed auto
shutdown
!
interface Serial0/1/0
description Connected to Branch 1
ip address 192.168.0.1 255.255.255.252
clock rate 2000000
!
interface Serial0/1/1
description Connected to Branch 2
ip address 192.168.0.5 255.255.255.252
ip nat inside
clock rate 2000000
!
interface Serial0/2/0
description Connecte to HQ
ip address 192.168.0.9 255.255.255.252
ip nat inside
clock rate 2000000
!
interface Serial0/2/1
description Connected to Factory
ip address 192.168.0.13 255.255.255.252
ip nat inside
clock rate 2000000
!
interface Vlan1
no ip address
shutdown
```

Packet Tracer - Troubleshooting Challenge - Use Documentation to Solve Issues

Ping desde Internet Server hasta su default gateway:

The screenshot shows the Cisco Packet Tracer interface. On the left, a network diagram displays three PCs (PC1, PC2, PC3) connected to a central hub. The 'Logical' tab is selected, showing the network topology. On the right, the 'Internet Server' configuration window is open, showing the 'Desktop' tab. The 'Command Prompt' window is active, displaying the output of the 'ipconfig /all' command for the Internet Server. The output shows the default gateway is 203.0.113.1. Below this, the 'ping 203.0.113.1' command is executed, showing successful results with 0% loss.

```
Cisco Packet Tracer SERVER Command Line 1.0
C:\>ipconfig /all

FastEthernet0 Connection: (default port)

    Connection-specific DNS Suffix...: 
    Physical Address. . . . .: 0001.964A.C4CB
    Link-local IPv6 Address . . . . .: FE80::201:96FF:FE4A:C4CB
    IPv6 Address. . . . .: 
    IPv4 Address. . . . .: 203.0.113.27
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: 
    203.0.113.1

    DHCP Servers. . . . .: 0.0.0.0
    DHCPv6 IAID. . . . .: 
    DHCPv6 Client DUID. . . . .: 00-01-00-01-B9-11-3E-E5-00-01-96-4A-C4-CB
    DNS Servers. . . . .: 
    0.0.0.0

C:\>ping 203.0.113.1

Pinging 203.0.113.1 with 32 bytes of data:

Reply from 203.0.113.1: bytes=32 time<1ms TTL=255
Reply from 203.0.113.1: bytes=32 time<1ms TTL=255
Reply from 203.0.113.1: bytes=32 time<1ms TTL=255
Reply from 203.0.113.1: bytes=32 time<1ms TTL=255

Ping statistics for 203.0.113.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Ping desde el ISP hasta el HUB:

The screenshot shows the Cisco Packet Tracer interface. On the left, a network diagram displays three PCs (PC1, PC2, PC3) connected to a central hub. The 'Logical' tab is selected, showing the network topology. On the right, the 'Internet Server' configuration window is open, showing the 'Desktop' tab. The 'Command Prompt' window is active, displaying the output of the 'ping 203.0.113.1' command, which is successful. Below this, the 'telnet 203.0.113.1' command is executed, showing a successful connection to the Internet Server. The 'User Access Verification' screen is displayed, showing the password 'en' and the command 'sh ip int brief'. The output of 'sh ip int brief' shows the IP address 203.0.113.1 assigned to the GigabitEthernet0/0/1 interface. Below this, the 'ping 192.0.2.1' command is executed, showing a success rate of 80 percent (4/5).

```
C:\>ping 203.0.113.1

Pinging 203.0.113.1 with 32 bytes of data:

Reply from 203.0.113.1: bytes=32 time<1ms TTL=255
Reply from 203.0.113.1: bytes=32 time<1ms TTL=255
Reply from 203.0.113.1: bytes=32 time<1ms TTL=255
Reply from 203.0.113.1: bytes=32 time<1ms TTL=255

Ping statistics for 203.0.113.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>telnet 203.0.113.1
Trying 203.0.113.1 ...Open

User Access Verification

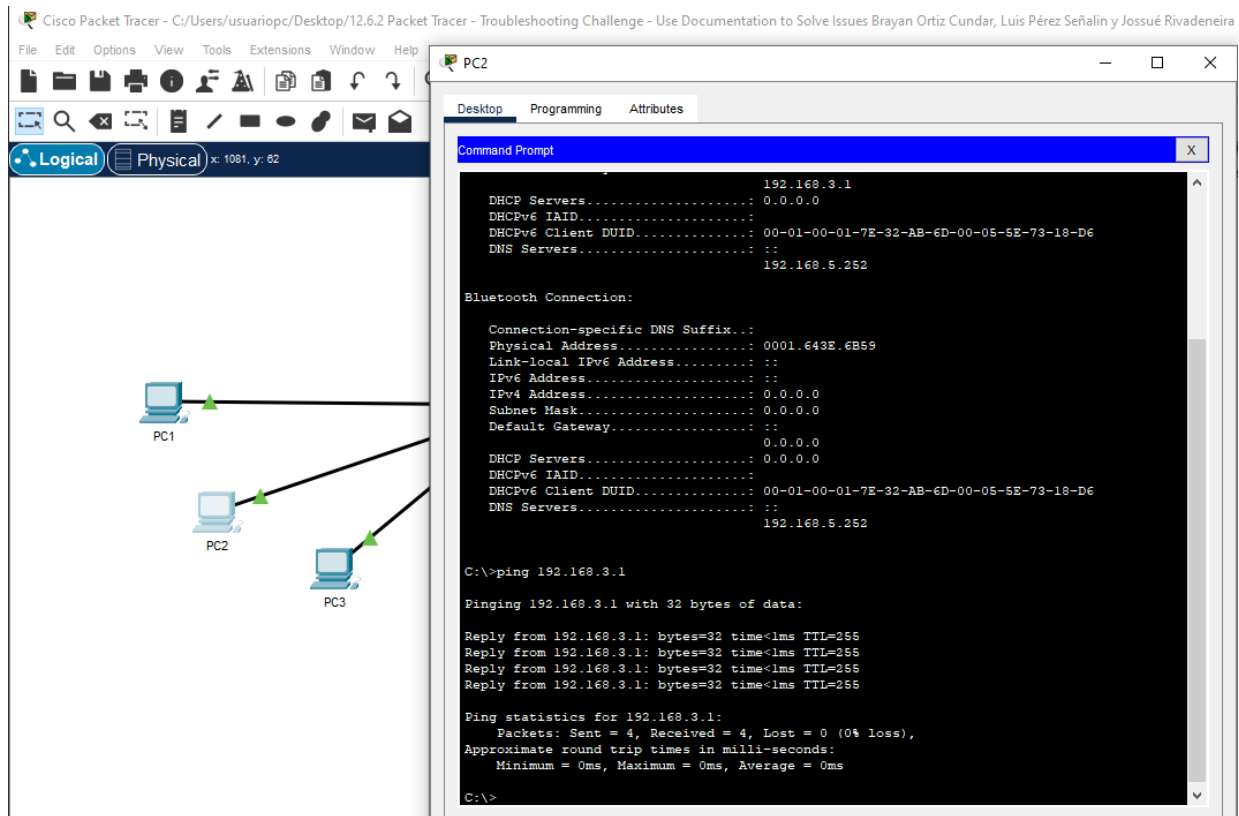
Password:
ISP>en
Password:
ISP>sh ip int brief
Interface      IP-Address      OK? Method Status      Protocol
GigabitEthernet0/0/0  192.0.2.2       YES manual up          up
GigabitEthernet0/0/1  203.0.113.1     YES manual up          up
Vlan1          unassigned      YES unset  administratively down down
ISP#ping 192.0.2.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.0.2.1, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 0/0/0 ms

ISP#
```

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Ping desde PC2 a su default gateway:



The screenshot shows the Cisco Packet Tracer interface. On the left, a network topology is visible with three PCs (PC1, PC2, PC3) connected to a central hub. PC2 is selected. On the right, the PC2 configuration window is open, showing the Desktop tab. The Command Prompt is open, displaying the following output:

```
C:\>ping 192.168.3.1

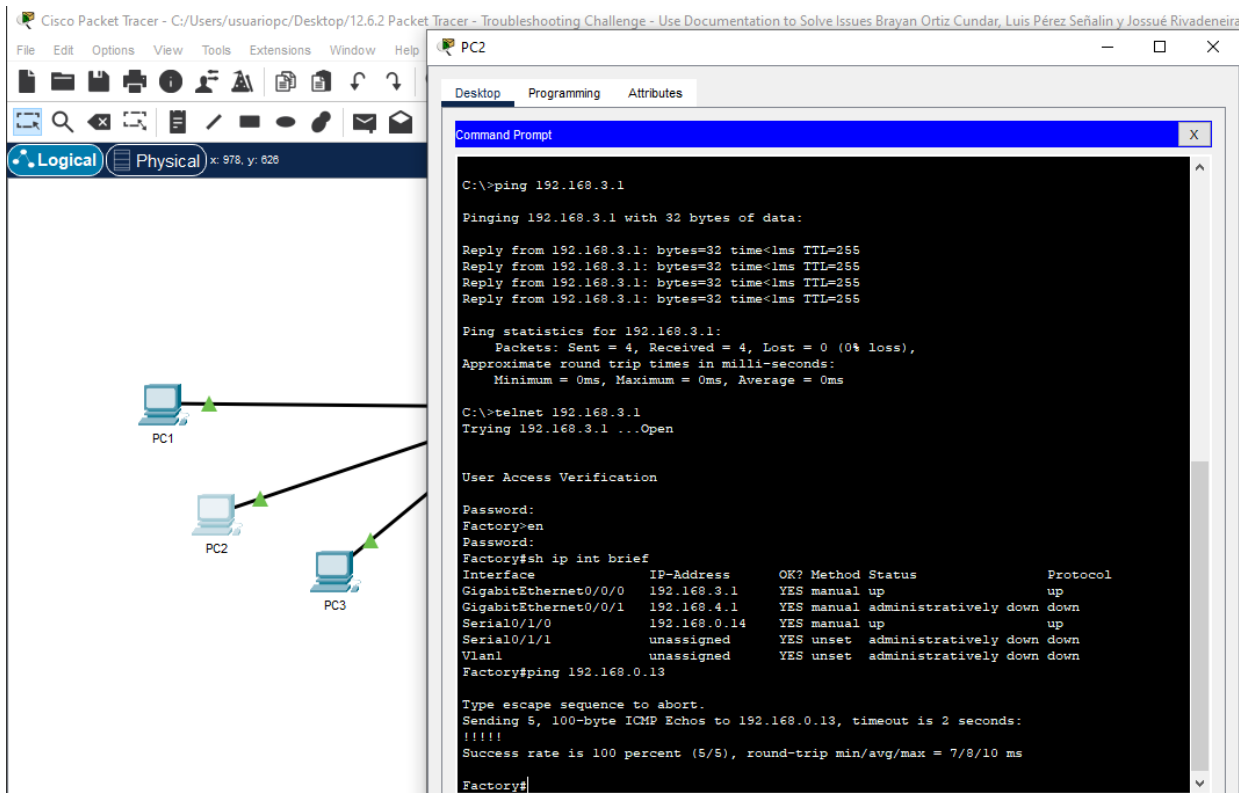
Pinging 192.168.3.1 with 32 bytes of data:

Reply from 192.168.3.1: bytes=32 time<1ms TTL=255
Reply from 192.168.3.1: bytes=32 time<1ms TTL=255
Reply from 192.168.3.1: bytes=32 time<1ms TTL=255
Reply from 192.168.3.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.3.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Ping desde Factory al Hub:



The screenshot shows the Cisco Packet Tracer interface. On the left, the same network topology is visible. PC2 is selected. On the right, the PC2 configuration window is open, showing the Desktop tab. The Command Prompt is open, displaying the following output:

```
C:\>ping 192.168.3.1

Pinging 192.168.3.1 with 32 bytes of data:

Reply from 192.168.3.1: bytes=32 time<1ms TTL=255
Reply from 192.168.3.1: bytes=32 time<1ms TTL=255
Reply from 192.168.3.1: bytes=32 time<1ms TTL=255
Reply from 192.168.3.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.3.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>telnet 192.168.3.1
Trying 192.168.3.1 ...Open

User Access Verification

Password:
Factory>en
Password:
Factory#sh ip int brief
Interface      IP-Address      OK? Method Status  Protocol
GigabitEthernet0/0/0  192.168.3.1    YES manual up      up
GigabitEthernet0/0/1  192.168.4.1    YES manual administratively down down
Serial0/1/0       192.168.0.14   YES manual up      up
Serial0/1/1       unassigned     YES unset  administratively down down
Vlan1            unassigned     YES unset  administratively down down
Factory#ping 192.168.0.13

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.13, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 7/8/10 ms

Factory#
```

Packet Tracer - Troubleshooting Challenge - Use Documentation to Solve Issues

Ping desde PC3 a su default Gateway:

The screenshot shows the Cisco Packet Tracer interface with three PCs (PC1, PC2, PC3) connected in a star topology. The 'Logical' tab is selected. The configuration window for PC3 is open, showing the 'Desktop' tab. The Command Prompt is open, displaying the following configuration:

```
Subnet Mask.....: 255.255.255.0
Default Gateway.....: ::
DHCP Servers.....: 0.0.0.0
DHCPv6 IAID.....:
DHCPv6 Client DUID.....: 00-01-00-01-7E-32-AB-6D-00-60-47-70-6D-7C
DNS Servers.....: 192.168.5.252

Bluetooth Connection:

Connection-specific DNS Suffix...:
Physical Address.....: 0060.2F05.9A1D
Link-local IPv6 Address.....: ::
IPv6 Address.....: ::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: ::
DHCP Servers.....: 0.0.0.0
DHCPv6 IAID.....:
DHCPv6 Client DUID.....: 00-01-00-01-7E-32-AB-6D-00-60-47-70-6D-7C
DNS Servers.....: 192.168.5.252

C:\>ping 192.168.4.1

Pinging 192.168.4.1 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.4.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Aquí se encuentra un error que se corregirá más adelante

Ping desde PC4 hasta su default Gateway:

The screenshot shows the Cisco Packet Tracer interface with three PCs (PC1, PC2, PC3) connected in a star topology. The 'Logical' tab is selected. The configuration window for PC4 is open, showing the 'Desktop' tab. The Command Prompt is open, displaying the following configuration:

```
Subnet Mask.....: 255.255.255.0
Default Gateway.....: 192.168.5.1
DHCP Servers.....: 0.0.0.0
DHCPv6 IAID.....:
DHCPv6 Client DUID.....: 00-01-00-01-7E-32-AB-6D-00-0A-F3-50-C4-68
DNS Servers.....: 192.168.5.252

Bluetooth Connection:

Connection-specific DNS Suffix...:
Physical Address.....: 0002.17E6.CC5D
Link-local IPv6 Address.....: ::
IPv6 Address.....: ::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: ::
DHCP Servers.....: 0.0.0.0
DHCPv6 IAID.....:
DHCPv6 Client DUID.....: 00-01-00-01-7E-32-AB-6D-00-0A-F3-50-C4-68
DNS Servers.....: 192.168.5.252

C:\>ping 192.168.5.1

Pinging 192.168.5.1 with 32 bytes of data:

Reply from 192.168.5.1: bytes=32 time<1ms TTL=255
Reply from 192.168.5.1: bytes=32 time<1ms TTL=255
Reply from 192.168.5.1: bytes=32 time<1ms TTL=255
Reply from 192.168.5.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.5.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Packet Tracer - Troubleshooting Challenge - Use Documentation to Solve Issues

Ping desde HQ hasta el Hub:

The screenshot shows the Cisco Packet Tracer interface. On the left, a network diagram displays three PCs (PC1, PC2, PC3) connected to a central hub. PC1 is connected to the hub, and PC2 and PC3 are also connected to it. On the right, a command prompt window for PC4 is open, showing the results of a ping command and a telnet session.

```
Reply from 192.168.5.1: bytes=32 time<1ms TTL=255
Reply from 192.168.5.1: bytes=32 time<1ms TTL=255
Reply from 192.168.5.1: bytes=32 time<1ms TTL=255
Reply from 192.168.5.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.5.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
C:\>telnet 192.168.5.1
Trying 192.168.5.1 ...Open

User Access Verification

Password:
HQ>en
Password:
HQ#sh ip int brief
Interface      IP-Address      OK? Method Status      Protocol
GigabitEthernet0/0/0  unassigned     YES unset  up          up
GigabitEthernet0/0/0.1 192.168.6.1    YES manual up          up
GigabitEthernet0/0/0.5 192.168.5.1    YES manual up          up
GigabitEthernet0/0/0.101 192.168.5.129 YES manual up          up
GigabitEthernet0/0/1    unassigned     YES unset  administratively down down
Serial0/1/0          192.168.0.10   YES manual up          up
Serial0/1/1          unassigned     YES unset  administratively down down
Vlan1              unassigned     YES unset  up          down
HQ#ping 192.168.0.9

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.9, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 7/8/11 ms

HQ#
```

Aquí también vemos que PC5 no tiene un default Gateway:

The screenshot shows the Cisco Packet Tracer interface. On the left, a network diagram displays three PCs (PC1, PC2, PC3) connected to a central hub. PC1 is connected to the hub, and PC2 and PC3 are also connected to it. On the right, a command prompt window for PC5 is open, showing the output of the 'ipconfig /all' command.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ipconfig /all

FastEthernet0 Connection: (default port)

    Connection-specific DNS Suffix...: 
    Physical Address. . . . .: 0000.0C1B.50E7
    Link-local IPv6 Address . . . . .: FE80::200:CFF:FE1B:50E7
    IPv6 Address. . . . .: ::
    IPv4 Address. . . . .: 192.168.5.227
    Subnet Mask . . . . .: 255.255.255.128
    Default Gateway . . . . .: ::
                                0.0.0.0
    DHCP Servers . . . . .: 0.0.0.0
    DHCPv6 IAID . . . . .: 
    DHCPv6 Client DUID. . . . .: 00-01-00-01-7E-32-AB-6D-00-00-0C-1B-50-E7
    DNS Servers . . . . .: ::
                                192.168.5.252

Bluetooth Connection:

    Connection-specific DNS Suffix...: 
    Physical Address. . . . .: 00E0.8F42.7A0E
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address. . . . .: ::
    IPv4 Address. . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::
                                0.0.0.0
    DHCP Servers . . . . .: 0.0.0.0
    DHCPv6 IAID . . . . .: 
    DHCPv6 Client DUID. . . . .: 00-01-00-01-7E-32-AB-6D-00-00-0C-1B-50-E7
    DNS Servers . . . . .: ::
                                192.168.5.252

C:\>
```


Packet Tracer - Troubleshooting Challenge - Use Documentation to Solve Issues

Ping desde PC6 hasta su default Gateway:

The screenshot shows the Cisco Packet Tracer interface. On the left, a network diagram displays three PCs (PC1, PC2, PC3) connected to a central hub. PC1 is connected to PC2, and PC2 is connected to PC3. On the right, the 'PC6' configuration window is open, showing the 'Desktop' tab with a 'Command Prompt' window. The command prompt displays the following information:

```
Subnet Mask..... 255.255.255.224
Default Gateway..... 192.168.2.33
DHCP Servers..... 0.0.0.0
DHCPv6 IAID.....
DHCPv6 Client DUID..... 00-01-00-01-7E-32-AB-6D-00-06-2A-B8-59-71
DNS Servers..... 192.168.5.252

Bluetooth Connection:

Connection-specific DNS Suffix...:
Physical Address..... 0002.165B.0475
Link-local IPv6 Address..... ::
IPv6 Address..... ::
IPv4 Address..... 0.0.0.0
Subnet Mask..... 0.0.0.0
Default Gateway..... ::
DHCP Servers..... 0.0.0.0
DHCPv6 IAID.....
DHCPv6 Client DUID..... 00-01-00-01-7E-32-AB-6D-00-06-2A-B8-59-71
DNS Servers..... 192.168.5.252

C:\>ping 192.168.2.33

Pinging 192.168.2.33 with 32 bytes of data:

Reply from 192.168.2.33: bytes=32 time<1ms TTL=255
Reply from 192.168.2.33: bytes=32 time<1ms TTL=255
Reply from 192.168.2.33: bytes=32 time<1ms TTL=255
Reply from 192.168.2.33: bytes=32 time=5ms TTL=255

Ping statistics for 192.168.2.33:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 5ms, Average = 1ms
```

Se intentó realizar un ping desde Hub hasta Branch-2 pero al parecer no están conectados entre ellos:

The screenshot shows two command prompt windows from Cisco Packet Tracer. The left window is for PC6, and the right window is for PC1.

PC6 Command Prompt:

```
DHCPv6 Client DUID..... 00-01-00-01-7E-32-AB-6D-00-06-2A-B8-59-71
DNS Servers..... 192.168.5.252

C:\>ping 192.168.2.33

Pinging 192.168.2.33 with 32 bytes of data:

Reply from 192.168.2.33: bytes=32 time<1ms TTL=255
Reply from 192.168.2.33: bytes=32 time<1ms TTL=255
Reply from 192.168.2.33: bytes=32 time<1ms TTL=255
Reply from 192.168.2.33: bytes=32 time=5ms TTL=255

Ping statistics for 192.168.2.33:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 5ms, Average = 1ms

C:\>telnet 192.168.2.33
Trying 192.168.2.33 ...Open

User Access Verification

Password:
Branch-2>en
Password:
Branch-2#sh ip int brief
Interface      IP-Address      OK? Method Status      Protocol
GigabitEthernet0/0/0  unassigned     YES ma  administratively down  down
GigabitEthernet0/0/0.1 192.168.2.1    YES ma  up
GigabitEthernet0/0/0.32 192.168.2.33  YES ma  up
GigabitEthernet0/0/0.64 192.168.2.65  YES ma  up
GigabitEthernet0/0/1  unassigned     YES un  administratively down  down
Serial0/1/0      192.168.0.17   YES un  up
Serial0/1/1      unassigned     YES un  administratively down  down
Vlan1            unassigned     YES un  administratively down  down
Branch-2#
```

PC1 Command Prompt:

```
Serial0/1/0      192.168.0.2     YES manual up          up
Serial0/1/1      unassigned     YES unset administratively down down
Vlan1            unassigned     YES unset administratively down down
Branch-1#ping 192.168.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 3/9/27 ms

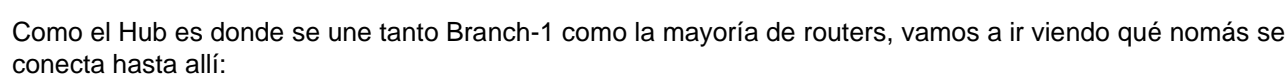
Branch-1#telnet 192.168.0.1
Trying 192.168.0.1 ...Open

User Access Verification

Password:
Hub>en
Password:
Hub#sh ip int brief
Interface      IP-Address      OK? Method Status      Protocol
GigabitEthernet0/0/0  192.0.2.1       YES manual up          up
GigabitEthernet0/0/1  unassigned     YES unset administratively down down
Serial0/1/0      192.168.0.1     YES manual up          up
Serial0/1/1      192.168.0.5     YES manual up          up
Serial0/2/0      192.168.0.9     YES manual up          up
Serial0/2/1      192.168.0.13    YES manual up          up
Vlan1            unassigned     YES unset administratively down down
Hub#
Hub#
Hub#ping 192.168.0.17

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.17, timeout is 2 seconds:
U.U.U
Success rate is 0 percent (0/5)

Hub#
```

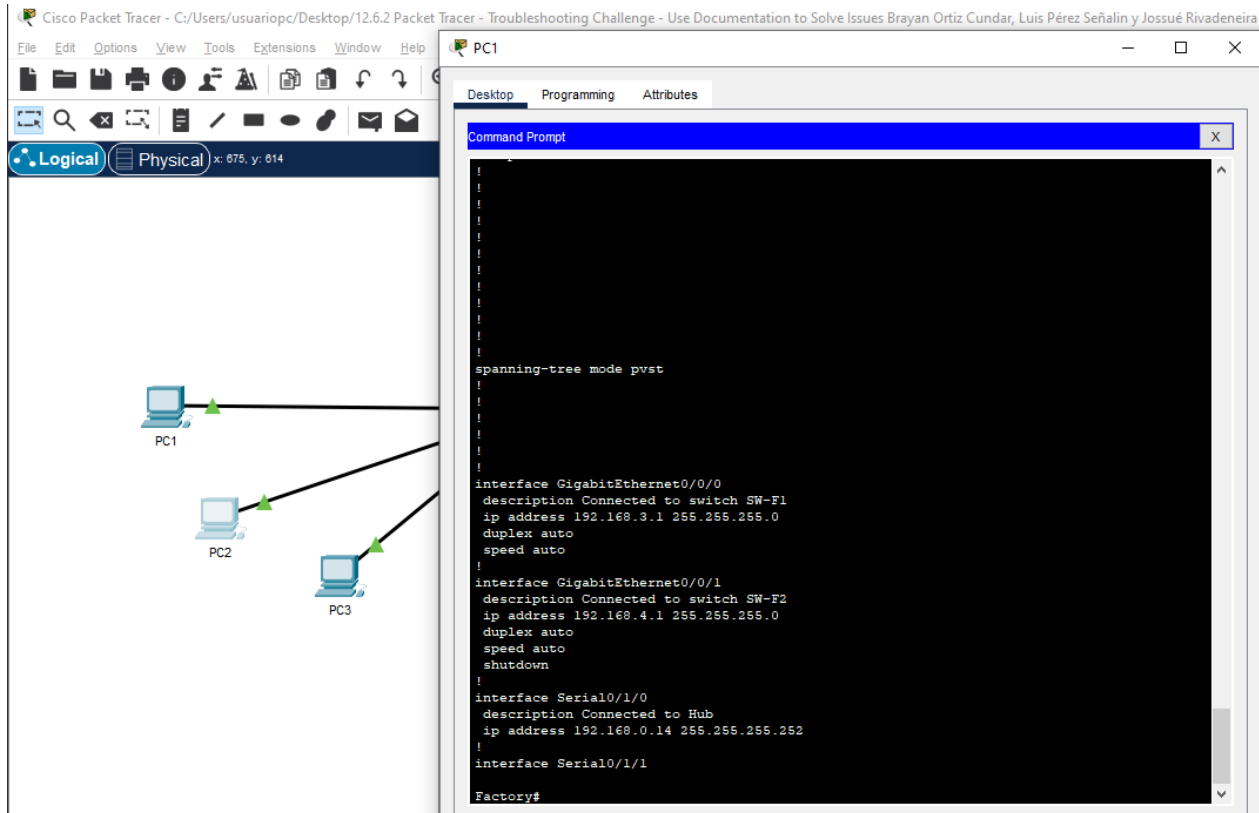


Al parecer aquí hay un problema de conexión del Hub a Branch-2, lo cual podría explicar el problema de PC6 y PC7.

Part 2: Access Network Devices

From the hosts which have communication problems, use ICMP tools to determine where in the network these problems may be located. From the host PCs, access devices in the network and display configurations and operational status.

Se empezará con el problema de la PC3, para ello volveremos al router Factory ya que allí se encontraba la dirección 192.168.4.1 que es el default Gateway de PC3:



Como se puede observar, el problema que tenía PC3 es que la interfaz que lo conecta con Factory se encuentra apagada, para solucionarlo solo la activaremos:

```
Factory#config t
Enter configuration commands, one per line. End with CNTL/Z.
Factory(config)#int g0/1/0
%Invalid interface type and number
Factory(config)#no shut
^
% Invalid input detected at '^' marker.

Factory(config)#int g0/0/1
Factory(config-if)#no shut

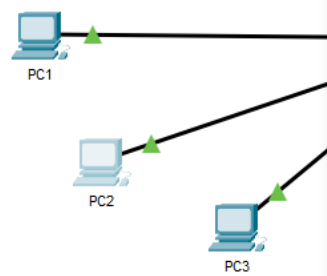
Factory(config-if)#do wr
Building configuration...
[OK]
Factory(config-if)#
```

Packet Tracer - Troubleshooting Challenge - Use Documentation to Solve Issues

Cisco Packet Tracer - C:\Users\usuariopc\Desktop\12.6.2 Packet Tracer - Troubleshooting Challenge - Use Documentation to Solve Issues Brayan Ortiz Cundar, Luis Pérez Señalín y Jossué Rivadeneira

File Edit Options View Tools Extensions Window Help

Logical Physical x: 1171, y: 81



PC1

PC2

PC3

PC3

Desktop Programming Attributes

Command Prompt

```
IPv6 Address.....: ::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: ::
                  0.0.0.0
DHCP Servers.....: 0.0.0.0
DHCPv6 IAID.....:
DHCPv6 Client DUID.....: 00-01-00-01-7E-32-AB-6D-00-60-47-70-6D-7C
DNS Servers.....: ::
                  192.168.5.252

C:\>ping 192.168.4.1

Pinging 192.168.4.1 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.4.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.4.1

Pinging 192.168.4.1 with 32 bytes of data:

Reply from 192.168.4.1: bytes=32 time<1ms TTL=255
Reply from 192.168.4.1: bytes=32 time<1ms TTL=255
Reply from 192.168.4.1: bytes=32 time<1ms TTL=255
Reply from 192.168.4.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.4.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

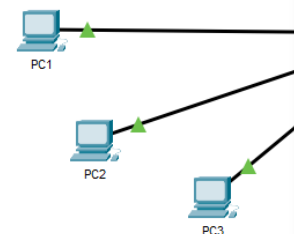
C:\>
```

Para PC5 que no tiene default Gateway, usaremos la red de la PC y veremos que la puerta de enlace que le corresponde se encuentra en HQ:

Cisco Packet Tracer - C:\Users\usuariopc\Desktop\12.6.2 Packet Tracer - Troubleshooting Challenge - Use Documentation to Solve Issues Brayan Ortiz Cundar, Luis Pérez Señalín y Jossué Rivadeneira

File Edit Options View Tools Extensions Window Help

Logical Physical x: 848, y: 208



PC1

PC2

PC3

PC1

Desktop Programming Attributes

Command Prompt

```
network 192.168.0.0 0.0.0.3 area 0
network 192.168.0.4 0.0.0.3 area 0
network 192.168.0.8 0.0.0.3 area 0
network 192.168.0.12 0.0.0.3 area 0
default-information originate
!
ip nat pool LAN 209.165.201.128 209.165.201.159 netmask 255.255.255.224
ip nat inside source list 1 pool LAN overload
ip classless
ip route 0.0.0.0 0.0.0.0 192.0.2.2
!
ip flow-export version 9
!
!
access-list 1 permit 192.168.0.0 0.0.7.255
!
!
!

Hub#telnet 192.168.0.10
Trying 192.168.0.10 ...Open

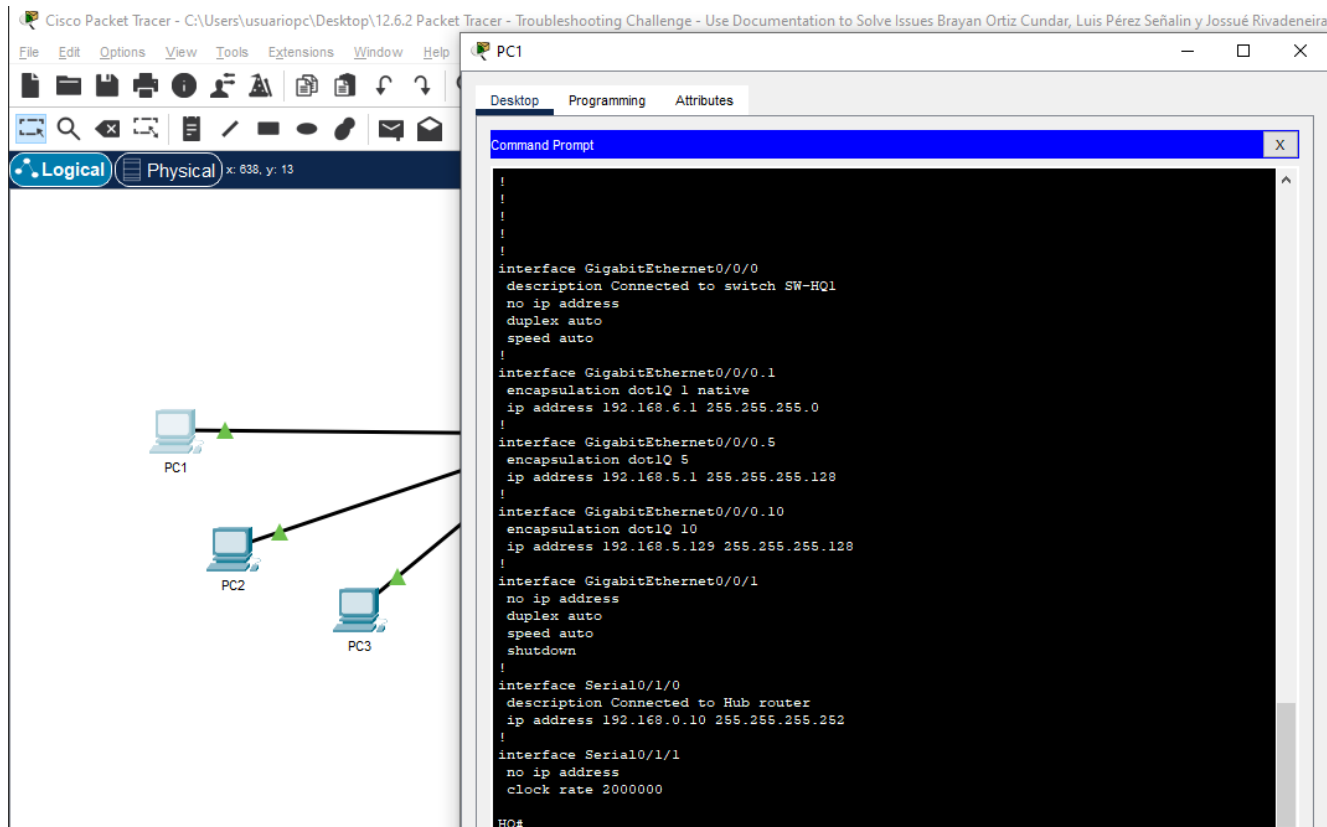
User Access Verification

Password:
H0>en
Password:
HQ#sh ip int brief

Interface      IP-Address      OK? Method Status      Protocol
GigabitEthernet0/0/0  unassigned      YES unset    up          up
GigabitEthernet0/0/0.1  192.168.6.1      YES manual  up          up
GigabitEthernet0/0/0.5  192.168.5.1      YES manual  up          up
GigabitEthernet0/0/0.10 192.168.5.129    YES manual  up          up
GigabitEthernet0/0/1    unassigned      YES unset    administratively down down
Serial0/1/0         192.168.0.10     YES manual  up          up
Serial0/1/1         unassigned      YES unset    administratively down down
Vlan1              unassigned      YES unset    up          down
HQ#
```

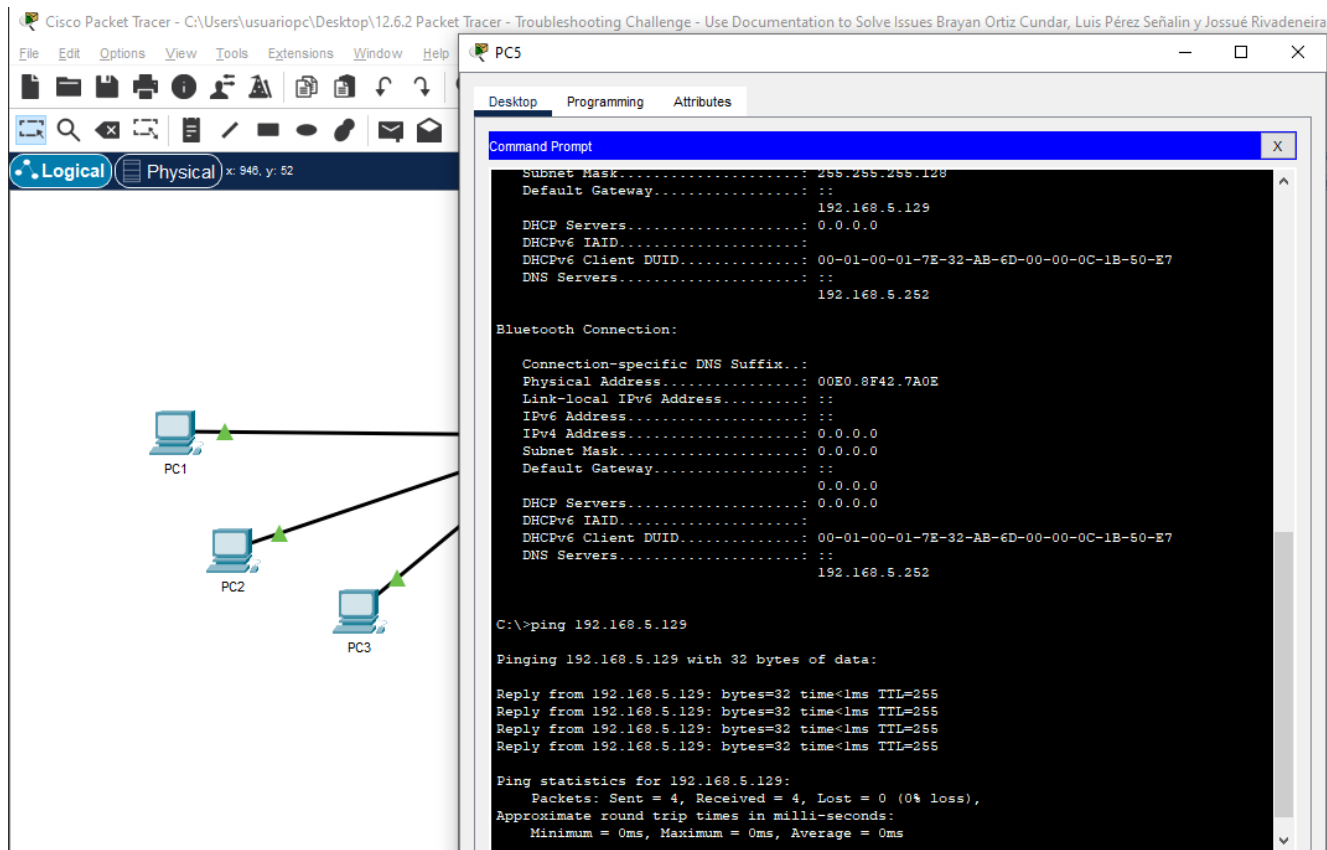
Packet Tracer - Troubleshooting Challenge - Use Documentation to Solve Issues

Por lo tanto, la default Gateway que le corresponde es 192.168.5.129, ya que la 5.1 no puede contener la dirección de PC5:



The screenshot shows the Cisco Packet Tracer interface. On the left, a network topology is visible with three PCs (PC1, PC2, PC3) connected to a central switch. PC1 is highlighted. On the right, the 'PC1' configuration window is open, showing the 'Desktop' tab and a 'Command Prompt' window. The Command Prompt displays the following configuration:

```
!
!
!
interface GigabitEthernet0/0/0
description Connected to switch SW-HQ1
no ip address
duplex auto
speed auto
!
interface GigabitEthernet0/0/0.1
encapsulation dot1Q 1 native
ip address 192.168.6.1 255.255.255.0
!
interface GigabitEthernet0/0/0.5
encapsulation dot1Q 5
ip address 192.168.5.1 255.255.255.128
!
interface GigabitEthernet0/0/0.10
encapsulation dot1Q 10
ip address 192.168.5.129 255.255.255.128
!
interface GigabitEthernet0/0/1
no ip address
duplex auto
speed auto
shutdown
!
interface Serial0/1/0
description Connected to Hub router
ip address 192.168.0.10 255.255.255.252
!
interface Serial0/1/1
no ip address
clock rate 2000000
!
HQ#
```



The screenshot shows the Cisco Packet Tracer interface. On the left, the same network topology is visible. PC5 is highlighted. On the right, the 'PC5' configuration window is open, showing the 'Desktop' tab and a 'Command Prompt' window. The Command Prompt displays the following configuration:

```
Subnet Mask..... 255.255.255.128
Default Gateway.....
DHCP Servers..... 0.0.0.0
DHCPv6 IAID.....
DHCPv6 Client DUID..... 00-01-00-01-7E-32-AB-6D-00-00-0C-1B-50-E7
DNS Servers..... 192.168.5.252

Bluetooth Connection:

Connection-specific DNS Suffix...
Physical Address..... 00E0.8F42.7A0E
Link-local IPv6 Address.....
IPv6 Address.....
IPv4 Address..... 0.0.0.0
Subnet Mask..... 0.0.0.0
Default Gateway.....
DHCP Servers..... 0.0.0.0
DHCPv6 IAID.....
DHCPv6 Client DUID..... 00-01-00-01-7E-32-AB-6D-00-00-0C-1B-50-E7
DNS Servers..... 192.168.5.252

C:\>ping 192.168.5.129

Pinging 192.168.5.129 with 32 bytes of data:

Reply from 192.168.5.129: bytes=32 time<1ms TTL=255
Reply from 192.168.5.129: bytes=32 time<1ms TTL=255
Reply from 192.168.5.129: bytes=32 time<1ms TTL=255
Reply from 192.168.5.129: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.5.129:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Packet Tracer - Troubleshooting Challenge - Use Documentation to Solve Issues

Ahora veamos qué pasaba en PC6 y PC7, entramos a Branch-2:

The screenshot shows the Cisco Packet Tracer interface. On the left, a network diagram displays three PCs (PC1, PC2, PC3) connected to a central switch. PC1 is connected to the switch, and PC2 and PC3 are connected to a different switch. On the right, the 'PC6' configuration window is open, showing the 'Command Prompt' tab. The configuration for PC6 is as follows:

```
interface GigabitEthernet0/0/0
description connected to switch SW-B2
no ip address
duplex auto
speed auto
!
interface GigabitEthernet0/0/0.1
encapsulation dot1Q 1 native
ip address 192.168.2.1 255.255.255.224
!
interface GigabitEthernet0/0/0.32
encapsulation dot1Q 32
ip address 192.168.2.33 255.255.255.224
!
interface GigabitEthernet0/0/0.64
encapsulation dot1Q 64
ip address 192.168.2.65 255.255.255.224
!
interface GigabitEthernet0/0/1
no ip address
duplex auto
speed auto
shutdown
!
interface Serial0/1/0
ip address 192.168.0.17 255.255.255.252
!
interface Serial0/1/1
no ip address
clock rate 2000000
shutdown
!
interface Vlan1
no ip address
shutdown
!
```

Como sabemos que en la red "192.168.0.17" solo puede haber 2 otros host, hacemos ping al otro host:

The screenshot shows the Cisco Packet Tracer interface. On the left, a network diagram displays three PCs (PC1, PC2, PC3) connected to a central switch. PC1 is connected to the switch, and PC2 and PC3 are connected to a different switch. On the right, the 'PC6' configuration window is open, showing the 'Command Prompt' tab. The configuration for PC6 is as follows:

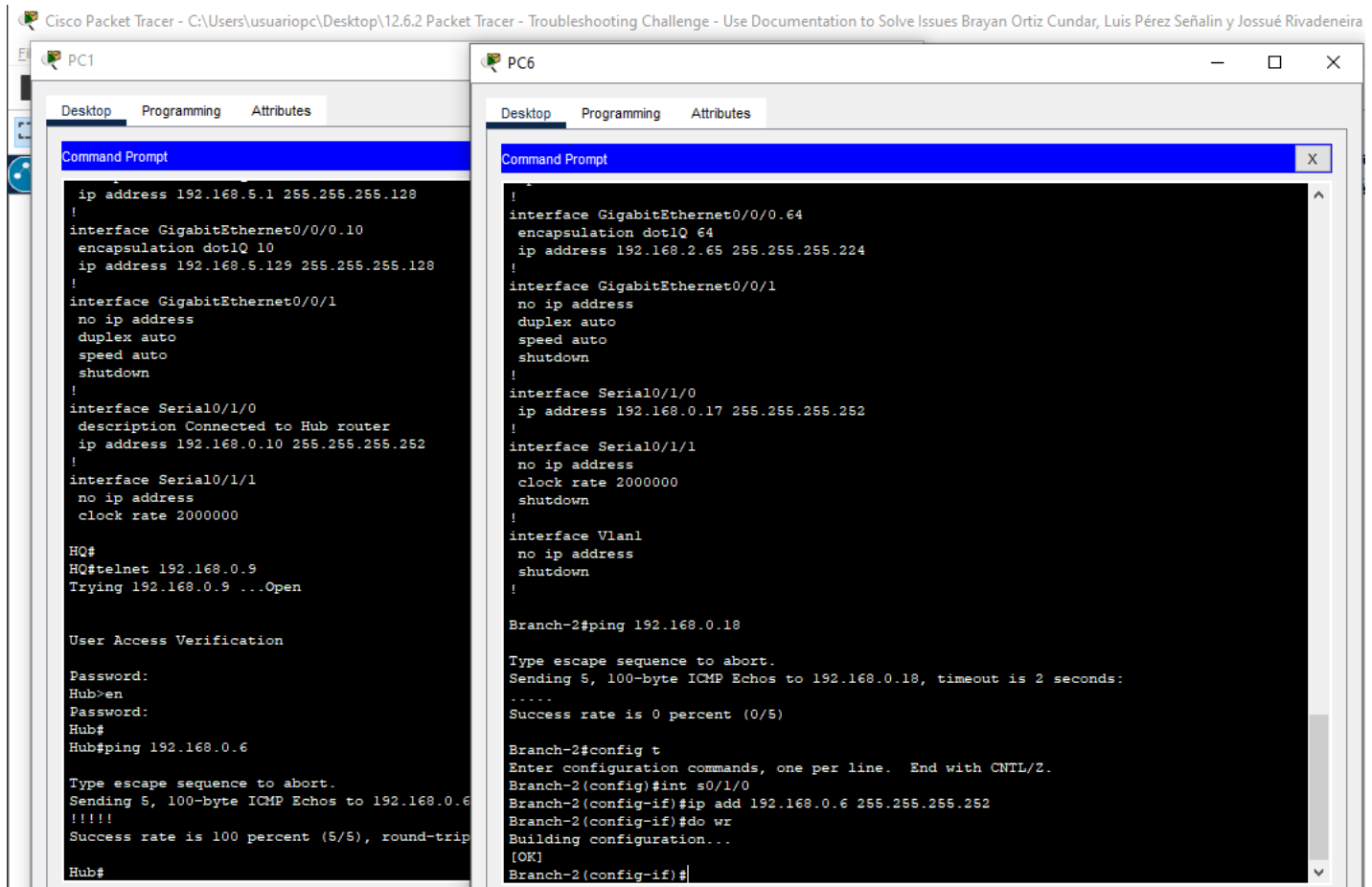
```
interface GigabitEthernet0/0/0.1
encapsulation dot1Q 1 native
ip address 192.168.2.1 255.255.255.224
!
interface GigabitEthernet0/0/0.32
encapsulation dot1Q 32
ip address 192.168.2.33 255.255.255.224
!
interface GigabitEthernet0/0/0.64
encapsulation dot1Q 64
ip address 192.168.2.65 255.255.255.224
!
interface GigabitEthernet0/0/1
no ip address
duplex auto
speed auto
shutdown
!
interface Serial0/1/0
ip address 192.168.0.17 255.255.255.252
!
interface Serial0/1/1
no ip address
clock rate 2000000
shutdown
!
interface Vlan1
no ip address
shutdown
!
```

The Command Prompt shows the following output:

```
Branch-2#ping 192.168.0.18
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.18, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
Branch-2#
```

Packet Tracer - Troubleshooting Challenge - Use Documentation to Solve Issues

Extrañamente no hay respuesta; anteriormente, en las interfaces del Hub, se podía ver que Branch-2 tenía la dirección “192.168.0.5” por lo que podríamos suponer que la dirección “192.168.0.17” que contiene Branch-2 es incorrecta, y que la que debería tener es “192.168.0.6”:

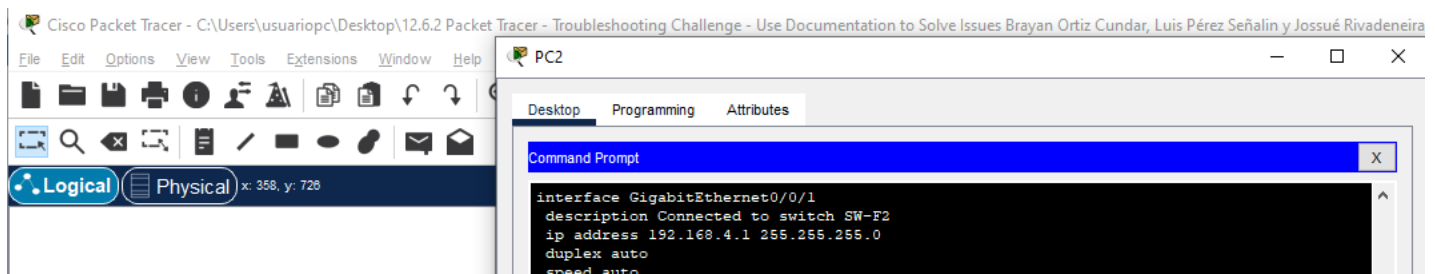


Efectivamente, el problema era la dirección del serial de Branch-2, por lo cual ahora se solucionaría el problema de PC6 y PC7 que estaban conectados a Branch-2.

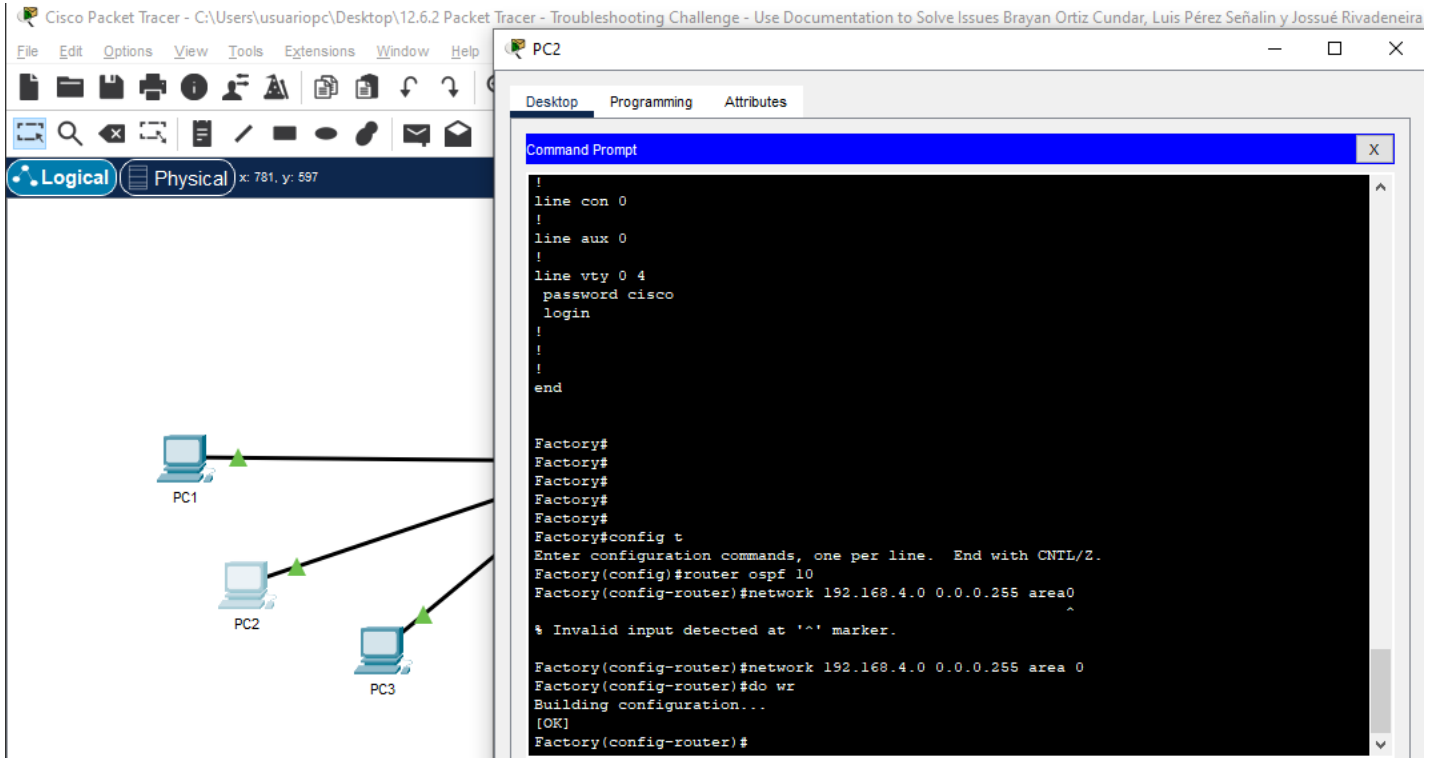
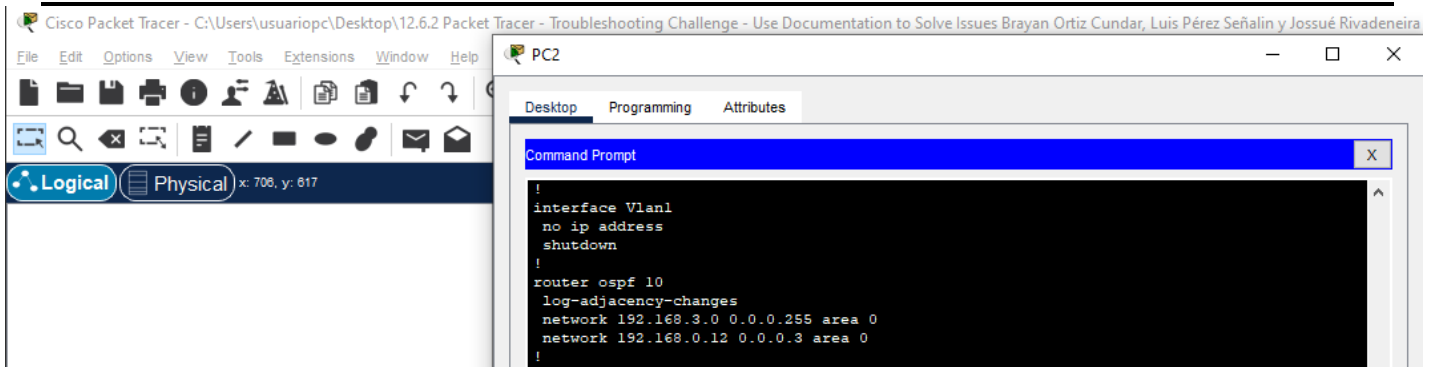
Part 3: Repair the Network

After locating the issues, reconfigure the devices to repair the connectivity problem. Use your documentation from the previous activity to help you.

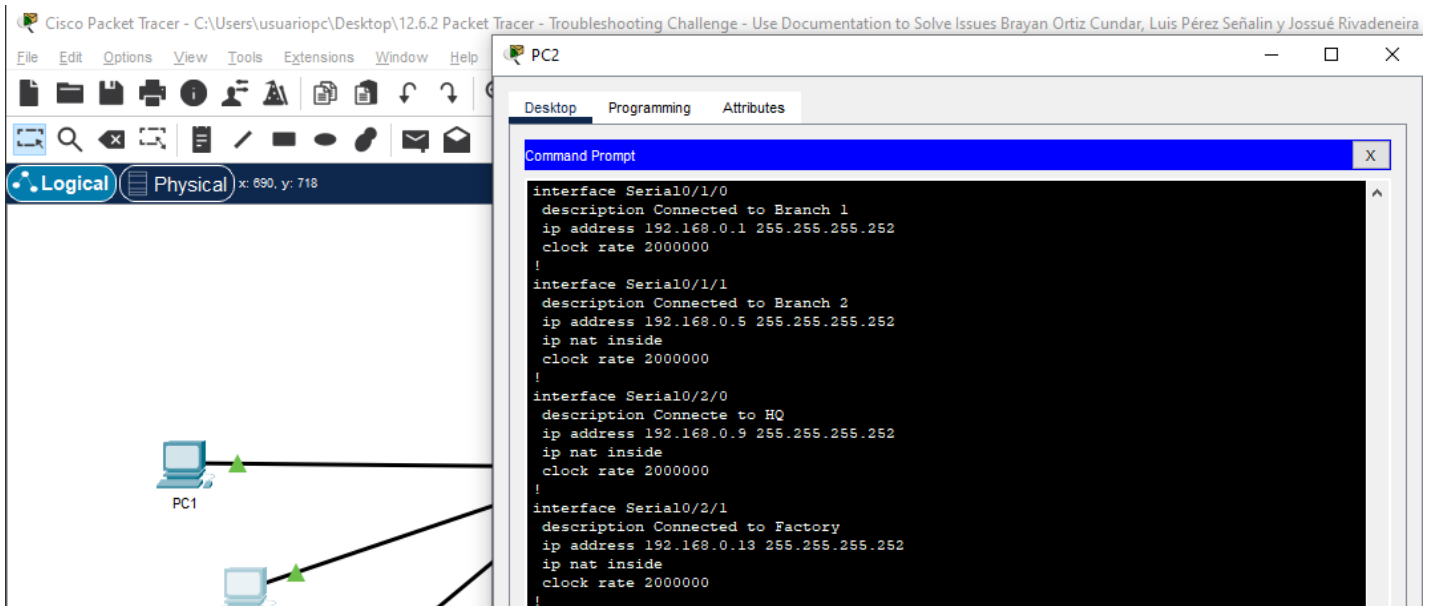
Revisando con el commando “show running-config” en el Router “Factory”, hay una interface con una dirección cuya red no se encuentra en el router OSPF, así que hay que agregarla:



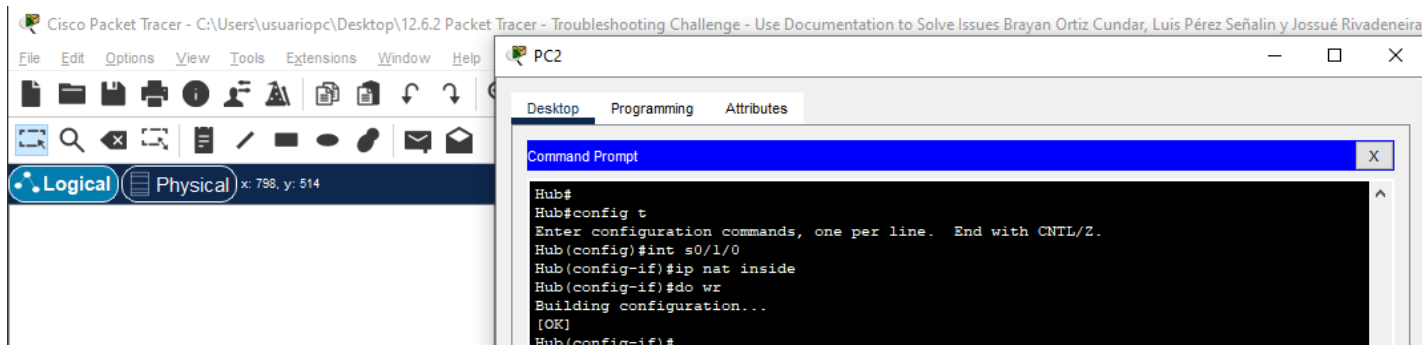
Packet Tracer - Troubleshooting Challenge - Use Documentation to Solve Issues



También, en el Hub, una de las interfaces activas seriales, no tiene NAT, así que hay que agregarle:



Packet Tracer - Troubleshooting Challenge - Use Documentation to Solve Issues



Part 4: Document the Issues

Record your issues in the table below.

Device	Issue	Action
PC3/Router "Factory"	Interfaz G0/0/1 apagada	Levantar la interfaz G0/0/1
PC5	No tiene Default Gateway	Se agregó la dirección del Default Gateway
PC6/PC7/Router "Branch-2"	Dirección IP errónea en la interfaz S0/1/0	Cambiar la dirección por la correspondiente a Branch-2
Router "Factory"	Red faltante en OSPF 10	Se agregó la red que contiene a la dirección "192.168.4.1"
Router "Hub"	Interfaz S0/1/0 sin NAT	Agregar NAT a la interfaz

Captura de pantalla de completitud:

