



UNAH

UNIVERSIDAD NACIONAL
AUTÓNOMA DE HONDURAS

IS-611, REDES II
Primer Periodo 2020
Informe Proyecto1 de Clase

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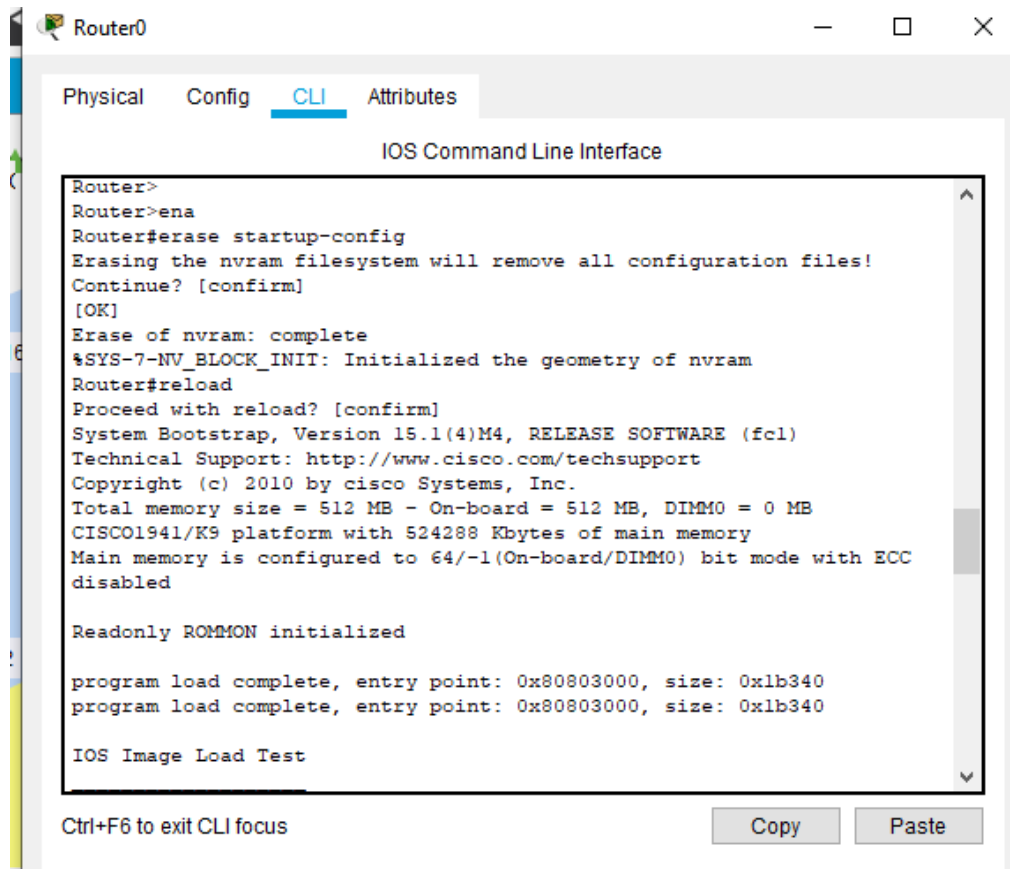
Sección: 13 00

Fecha de Entrega: martes 7 de abril del 2020

Parte 1: Inicializar dispositivos

Inicializar y volver a cargar los routers y los switches

➤ Router 0



The screenshot shows the Router0 CLI interface with the following commands and output:

```
Router>
Router>ena
Router#erase startup-config
Erasing the nvram filesystem will remove all configuration files!
Continue? [confirm]
[OK]
Erase of nvram: complete
%SYS-7-NV_BLOCK_INIT: Initialized the geometry of nvram
Router#reload
Proceed with reload? [confirm]
System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 2010 by Cisco Systems, Inc.
Total memory size = 512 MB - On-board = 512 MB, DIMM0 = 0 MB
CISCO1941/K9 platform with 524288 Kbytes of main memory
Main memory is configured to 64/-1 (On-board/DIMM0) bit mode with ECC
disabled

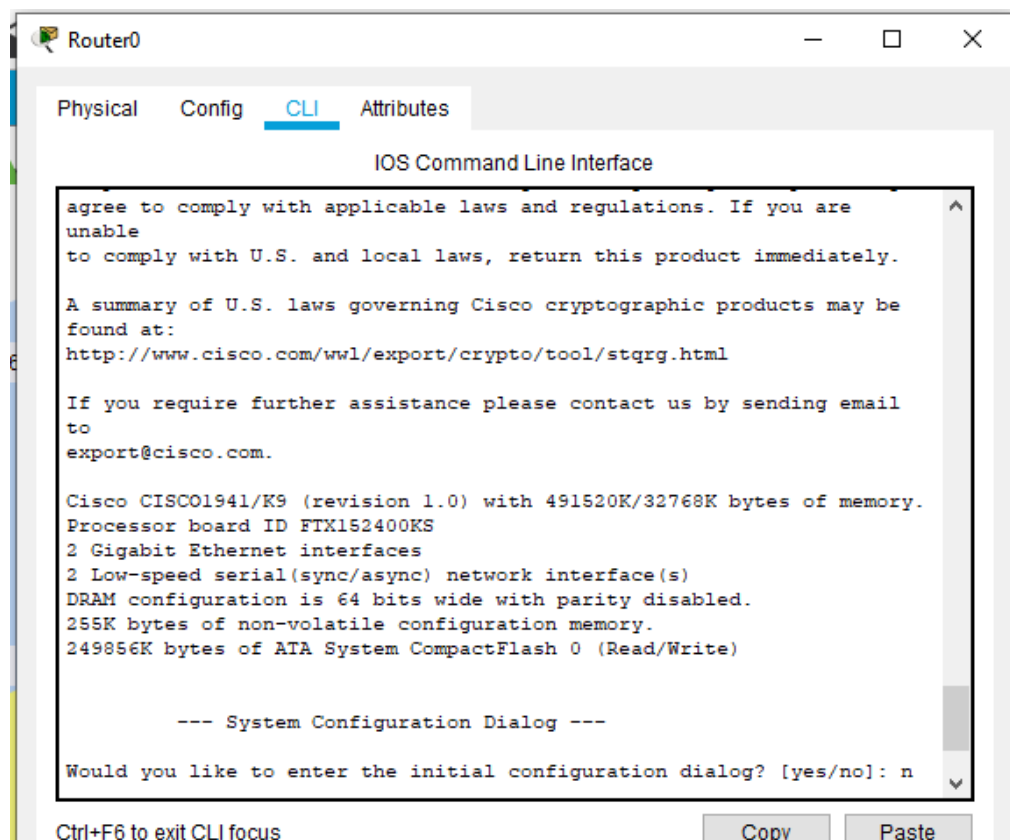
Readonly ROMMON initialized

program load complete, entry point: 0x80803000, size: 0x1b340
program load complete, entry point: 0x80803000, size: 0x1b340

IOS Image Load Test
```

Ctrl+F6 to exit CLI focus

Copy Paste



The screenshot shows the Router0 CLI interface with the following output:

```
agree to comply with applicable laws and regulations. If you are
unable
to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be
found at:
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email
to
export@cisco.com.

Cisco CISCO1941/K9 (revision 1.0) with 491520K/32768K bytes of memory.
Processor board ID FTX152400KS
2 Gigabit Ethernet interfaces
2 Low-speed serial(sync/async) network interface(s)
DRAM configuration is 64 bits wide with parity disabled.
255K bytes of non-volatile configuration memory.
249856K bytes of ATA System CompactFlash 0 (Read/Write)

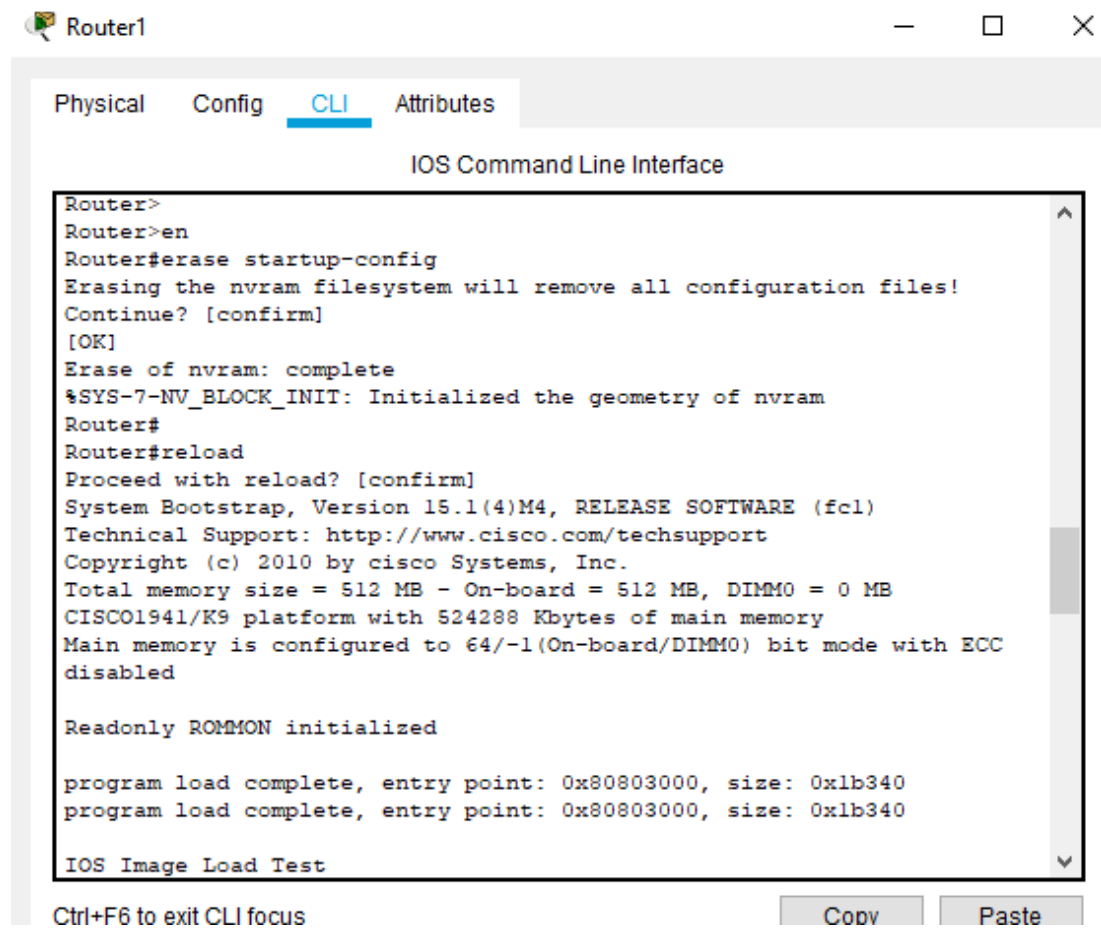
--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: n
```

Ctrl+F6 to exit CLI focus

Copy Paste

➤ Router 1



Router1

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>
Router>en
Router#erase startup-config
Erasing the nvram filesystem will remove all configuration files!
Continue? [confirm]
[OK]
Erase of nvram: complete
%SYS-7-NV_BLOCK_INIT: Initialized the geometry of nvram
Router#
Router#reload
Proceed with reload? [confirm]
System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 2010 by cisco Systems, Inc.
Total memory size = 512 MB - On-board = 512 MB, DIMM0 = 0 MB
CISCO1941/K9 platform with 524288 Kbytes of main memory
Main memory is configured to 64/-1 (On-board/DIMM0) bit mode with ECC
disabled

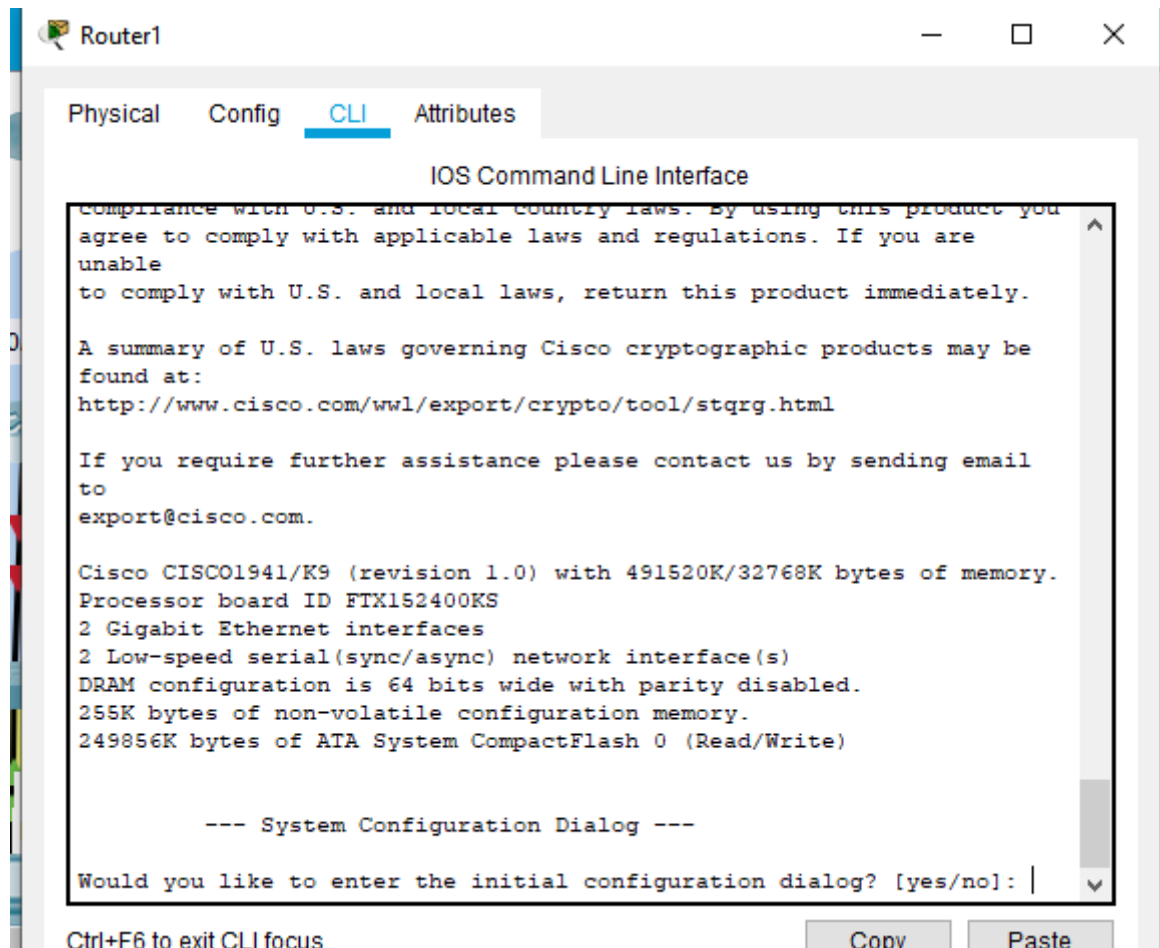
Readonly ROMMON initialized

program load complete, entry point: 0x80803000, size: 0x1b340
program load complete, entry point: 0x80803000, size: 0x1b340

IOS Image Load Test
```

Ctrl+F6 to exit CLI focus

Copy Paste



Router1

Physical Config CLI Attributes

IOS Command Line Interface

```
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are
unable
to comply with U.S. and local laws, return this product immediately.

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DRAM configuration is 64 bits wide with parity disabled.
255K bytes of non-volatile configuration memory.
249856K bytes of ATA System CompactFlash 0 (Read/Write)

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: |
```

Ctrl+F6 to exit CLI focus

Copy Paste

➤ Router 3

Router2

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>en
Router#erase startup-config
Erasing the nvram filesystem will remove all configuration files!
Continue? [confirm]
[OK]
Erase of nvram: complete
%SYS-7-NV_BLOCK_INIT: Initialized the geometry of nvram
Router#
Router#reload
Proceed with reload? [confirm]
System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 2010 by cisco Systems, Inc.
Total memory size = 512 MB - On-board = 512 MB, DIMM0 = 0 MB
CISCO1941/K9 platform with 524288 Kbytes of main memory
Main memory is configured to 64/-1(On-board/DIMM0) bit mode with ECC
disabled

Readonly ROMMON initialized

program load complete, entry point: 0x80803000, size: 0x1b340
program load complete, entry point: 0x80803000, size: 0x1b340

IOS Image Load Test
```

Ctrl+F6 to exit CLI focus

Copy Paste

Router2

Physical Config CLI Attributes

IOS Command Line Interface

```
Compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are
unable
to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be
found at:
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email
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Cisco CISCO1941/K9 (revision 1.0) with 491520K/32768K bytes of memory.
Processor board ID FTX152400KS
2 Gigabit Ethernet interfaces
2 Low-speed serial(sync/async) network interface(s)
DRAM configuration is 64 bits wide with parity disabled.
255K bytes of non-volatile configuration memory.
249856K bytes of ATA System CompactFlash 0 (Read/Write)

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: |
```

Ctrl+F6 to exit CLI focus

Copy Paste

➤ Switch 0

Switch0

Physical
Config
CLI
Attributes

IOS Command Line Interface

```

Switch#erase startup-config
Erasing the nvram filesystem will remove all configuration files!
Continue? [confirm]
[OK]
Erase of nvram: complete
%SYS-7-NV_BLOCK_INIT: Initialized the geometry of nvram
Switch#
Switch#reload
System configuration has been modified. Save? [yes/no]:
% Please answer 'yes' or 'no'.
System configuration has been modified. Save? [yes/no]:
% Please answer 'yes' or 'no'.
System configuration has been modified. Save? [yes/no]:y
Building configuration...
[OK]
Proceed with reload? [confirm]
C2960 Boot Loader (C2960-HBOOT-M) Version 12.2(25r)FX, RELEASE
SOFTWARE (fc4)
Cisco WS-C2960-24TT (RC32300) processor (revision C0) with 21039K
bytes of memory.
2960-24TT starting...
Base ethernet MAC Address: 0060.47E4.E4E5
Xmodem file system is available.
Initializing Flash...
flashfs[0]: 2 files, 0 directories

```

Ctrl+F6 to exit CLI focus
Copy Paste

Switch0

Physical
Config
CLI
Attributes

IOS Command Line Interface

```

Motherboard assembly number      : 73-9902-00
Power supply part number         : 341-0097-02
Motherboard serial number        : FOC103248MJ
Power supply serial number       : DCA102133JA
Model revision number            : B0
Motherboard revision number      : C0
Model number                     : WS-C2960-24TT
System serial number             : FOC103321EY
Top Assembly Part Number         : 800-26671-02
Top Assembly Revision Number    : B0
Version ID                       : V02
CLEI Code Number                 : COM3K00BRA
Hardware Board Revision Number   : 0x01

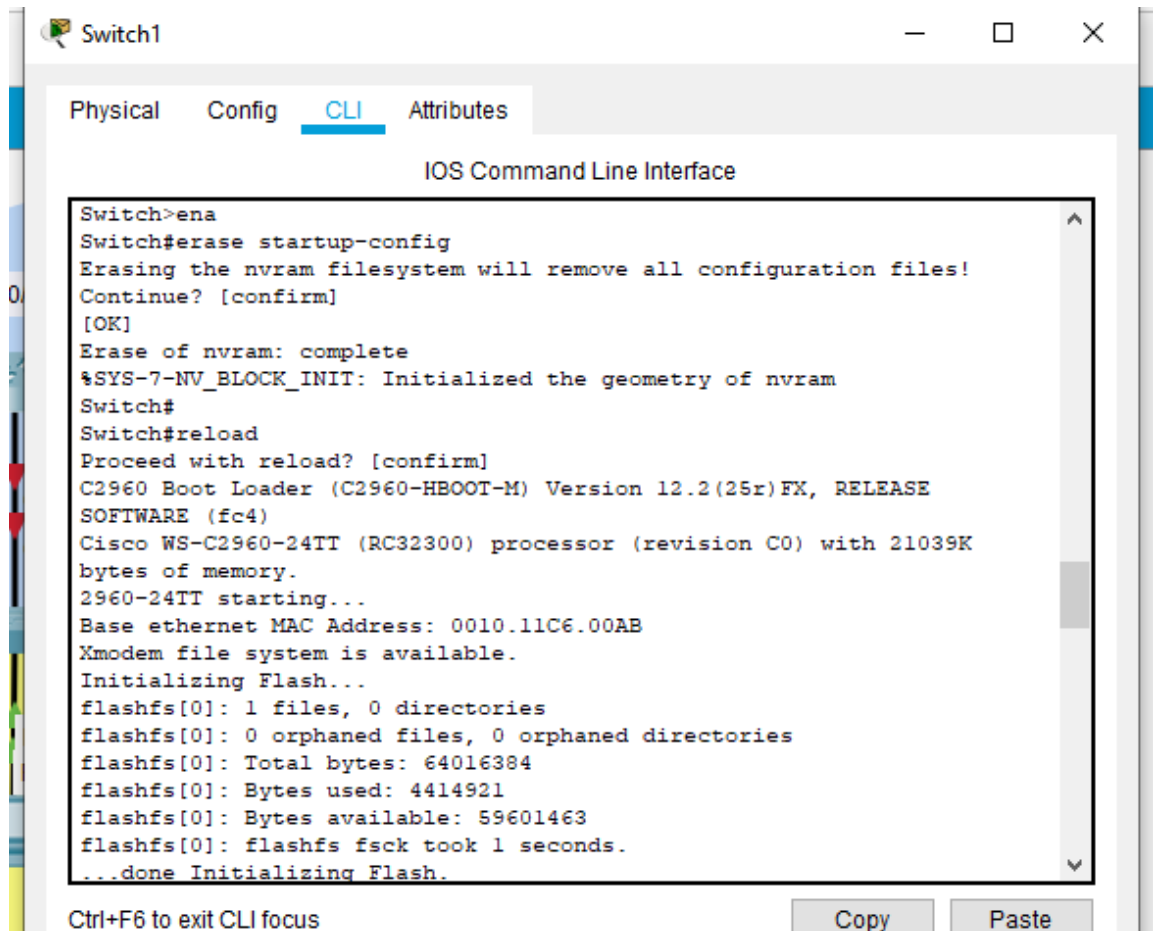
Switch  Ports  Model           SW Version      SW Image
-----  -
*    1    26    WS-C2960-24TT   12.2            C2960-
LANBASE-M

Cisco IOS Software, C2960 Software (C2960-LANBASE-M), Version
12.2(25)FX, RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2005 by Cisco Systems, Inc.
Compiled Wed 12-Oct-05 22:05 by pt_team

```

Ctrl+F6 to exit CLI focus
Copy Paste

➤ Switch 1



Switch1

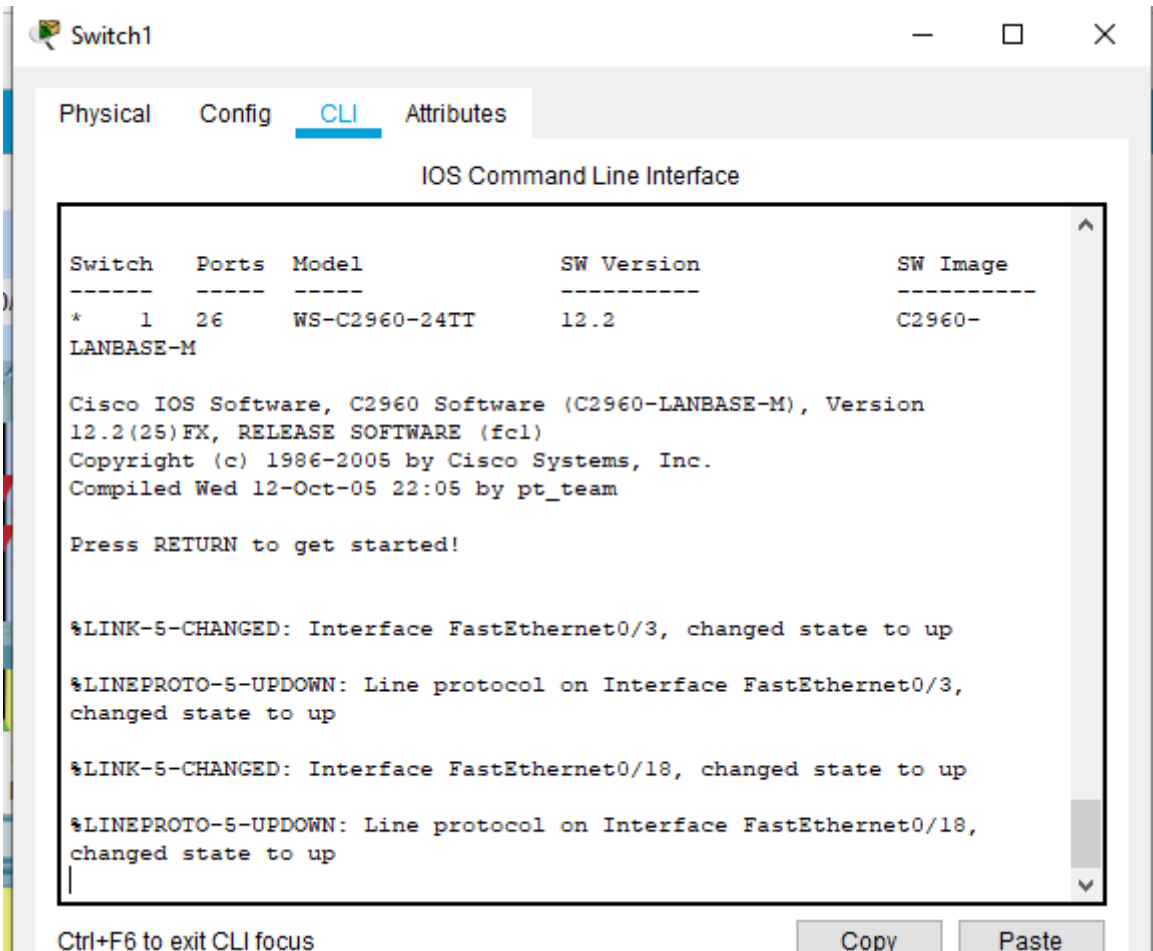
Physical Config CLI Attributes

IOS Command Line Interface

```
Switch>ena
Switch#erase startup-config
Erasing the nvram filesystem will remove all configuration files!
Continue? [confirm]
[OK]
Erase of nvram: complete
%SYS-7-NV_BLOCK_INIT: Initialized the geometry of nvram
Switch#
Switch#reload
Proceed with reload? [confirm]
C2960 Boot Loader (C2960-HBOOT-M) Version 12.2(25r)FX, RELEASE
SOFTWARE (fc4)
Cisco WS-C2960-24TT (RC32300) processor (revision C0) with 21039K
bytes of memory.
2960-24TT starting...
Base ethernet MAC Address: 0010.11C6.00AB
Xmodem file system is available.
Initializing Flash...
flashfs[0]: 1 files, 0 directories
flashfs[0]: 0 orphaned files, 0 orphaned directories
flashfs[0]: Total bytes: 64016384
flashfs[0]: Bytes used: 4414921
flashfs[0]: Bytes available: 59601463
flashfs[0]: flashfs fsck took 1 seconds.
...done Initializing Flash.
```

Ctrl+F6 to exit CLI focus

Copy Paste



Switch1

Physical Config CLI Attributes

IOS Command Line Interface

```
Switch  Ports  Model              SW Version  SW Image
-----  -
*    1   26    WS-C2960-24TT    12.2        C2960-
LANBASE-M

Cisco IOS Software, C2960 Software (C2960-LANBASE-M), Version
12.2(25)FX, RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2005 by Cisco Systems, Inc.
Compiled Wed 12-Oct-05 22:05 by pt_team

Press RETURN to get started!

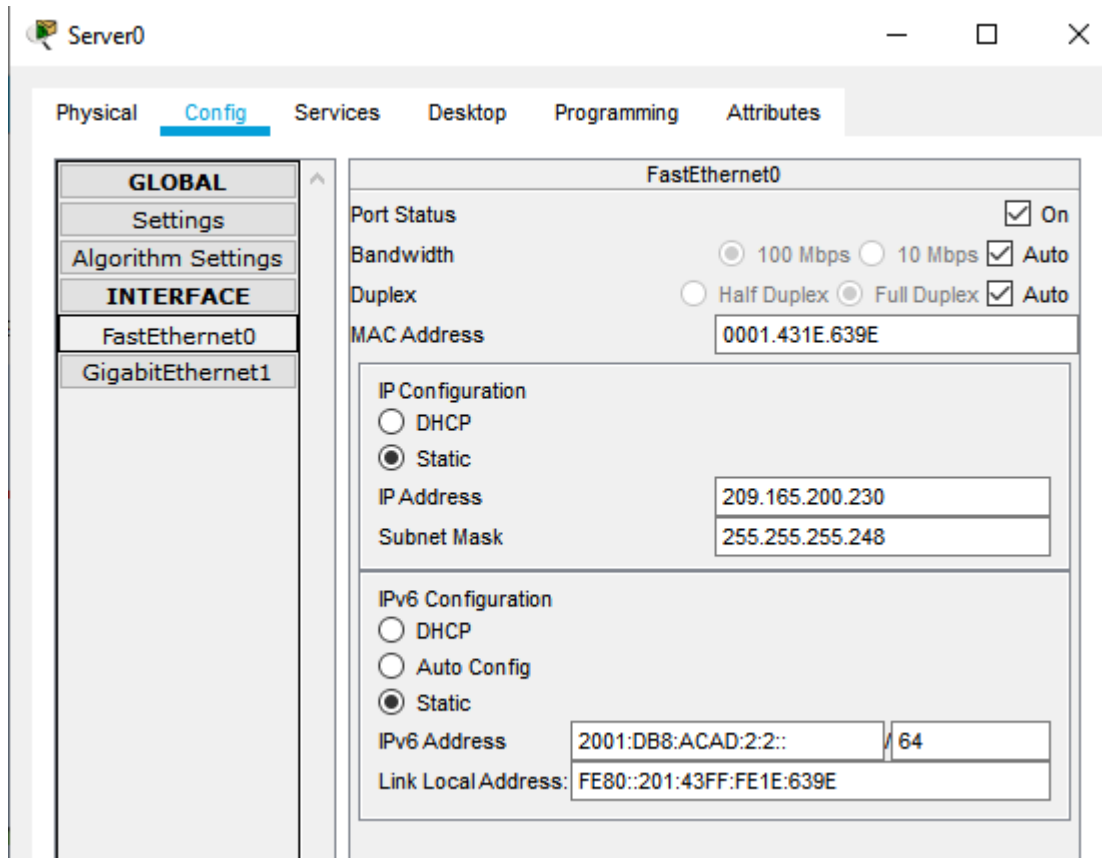
%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3,
changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/18, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/18,
changed state to up
```

Ctrl+F6 to exit CLI focus

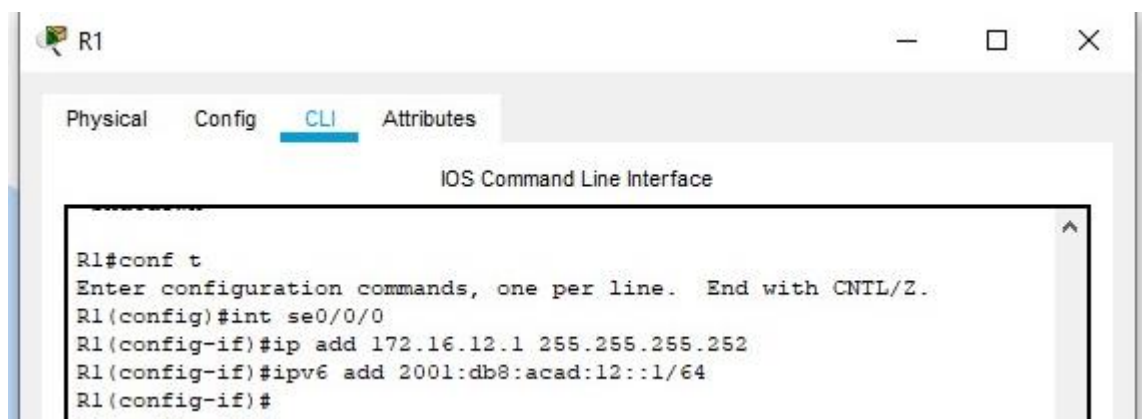
Copy Paste

Parte 2: Configurar los parámetros básicos de los dispositivos

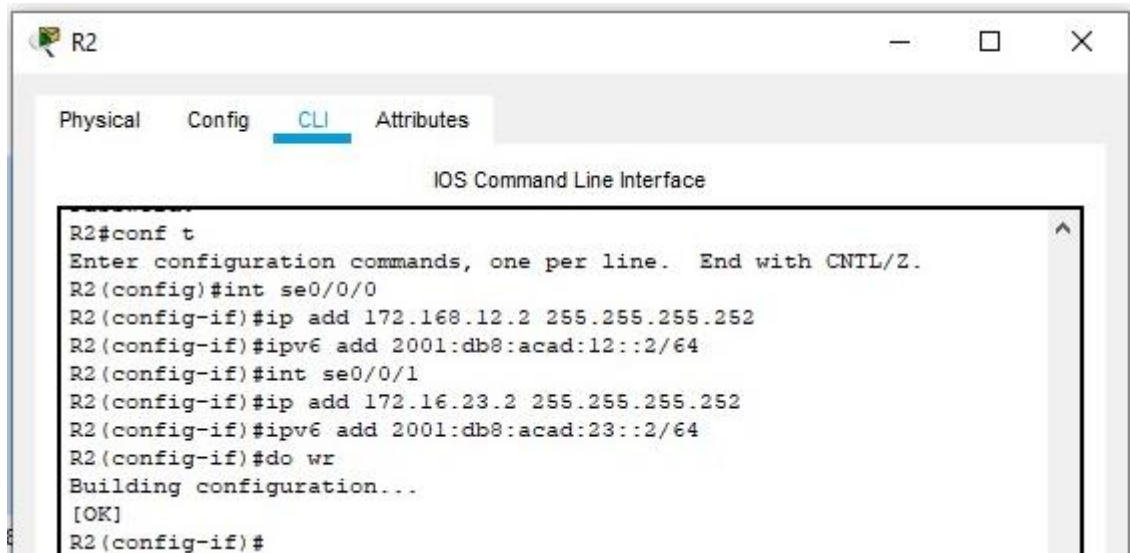
- Paso 1: Configurar el servidor de Internet



- Paso 2: Configurar R1



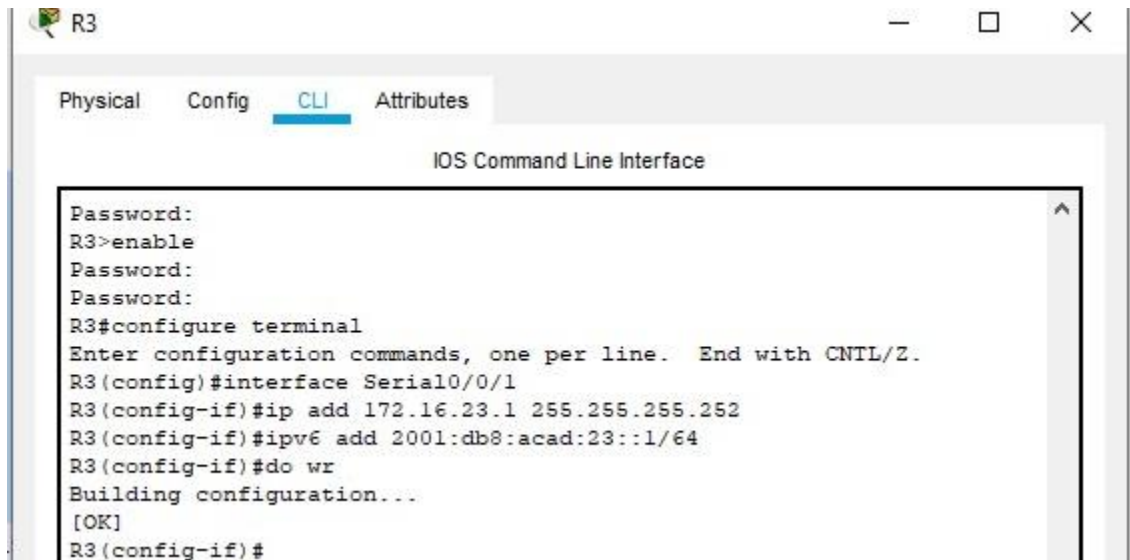
- Paso 3: Configurar R2



The screenshot shows a window titled 'R2' with tabs for 'Physical', 'Config', 'CLI', and 'Attributes'. The 'CLI' tab is selected, displaying the 'IOS Command Line Interface'. The terminal shows the following commands and output:

```
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#int se0/0/0
R2(config-if)#ip add 172.168.12.2 255.255.255.252
R2(config-if)#ipv6 add 2001:db8:acad:12::2/64
R2(config-if)#int se0/0/1
R2(config-if)#ip add 172.16.23.2 255.255.255.252
R2(config-if)#ipv6 add 2001:db8:acad:23::2/64
R2(config-if)#do wr
Building configuration...
[OK]
R2(config-if)#
```

- Paso 4: Configure R3

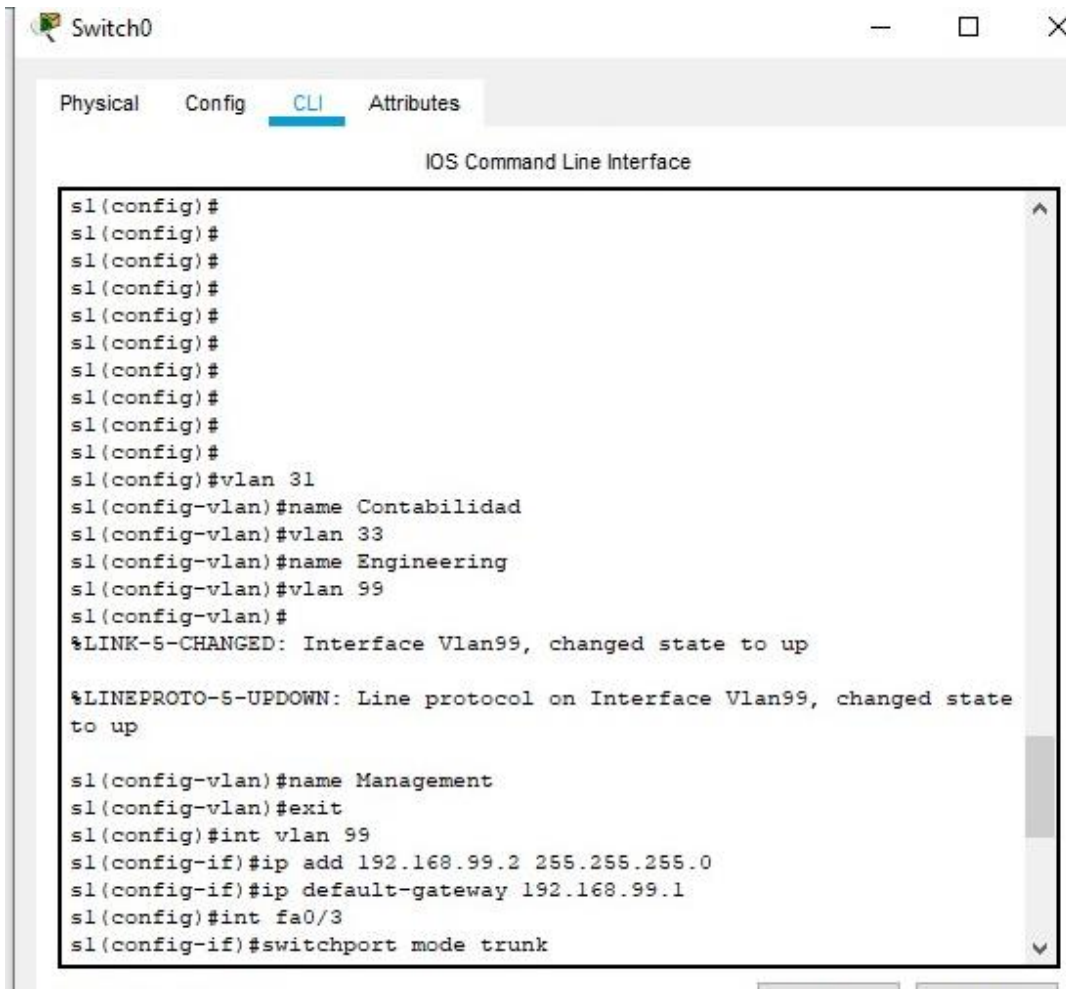


The screenshot shows a window titled 'R3' with tabs for 'Physical', 'Config', 'CLI', and 'Attributes'. The 'CLI' tab is selected, displaying the 'IOS Command Line Interface'. The terminal shows the following commands and output:

```
Password:
R3>enable
Password:
Password:
R3#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#interface Serial0/0/1
R3(config-if)#ip add 172.16.23.1 255.255.255.252
R3(config-if)#ipv6 add 2001:db8:acad:23::1/64
R3(config-if)#do wr
Building configuration...
[OK]
R3(config-if)#
```


Parte 3: Configurar la seguridad del switch, las VLAN y el routing entre VLAN

- Paso 1: Configurar S1

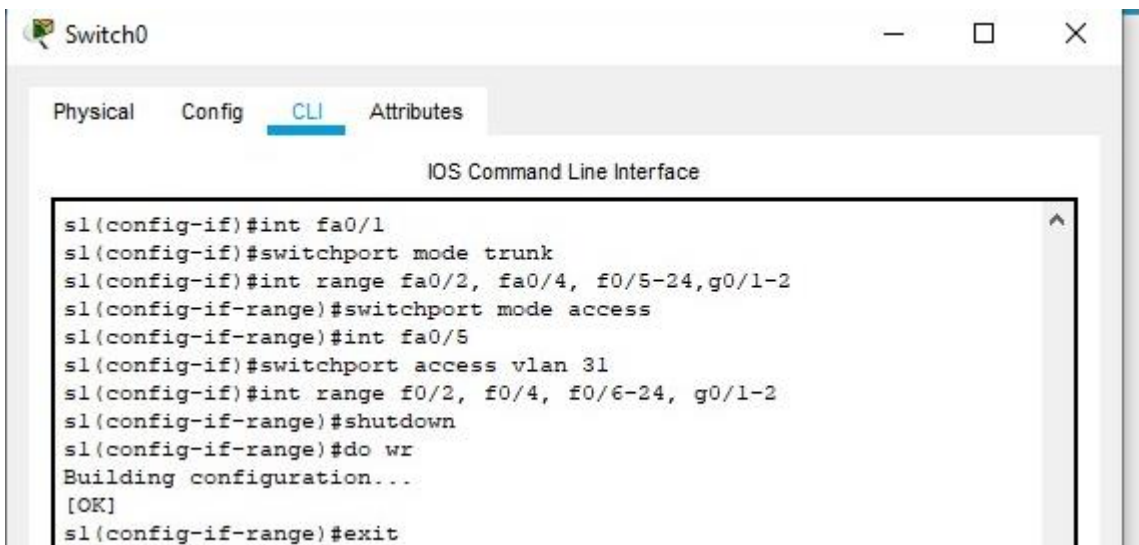


```
s1(config)#
s1(config)#
s1(config)#
s1(config)#
s1(config)#
s1(config)#
s1(config)#
s1(config)#
s1(config)#
s1(config)#
s1(config)#
s1(config)#vlan 31
s1(config-vlan)#name Contabilidad
s1(config-vlan)#vlan 33
s1(config-vlan)#name Engineering
s1(config-vlan)#vlan 99
s1(config-vlan)#
%LINK-5-CHANGED: Interface Vlan99, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan99, changed state
to up

s1(config-vlan)#name Management
s1(config-vlan)#exit
s1(config)#int vlan 99
s1(config-if)#ip add 192.168.99.2 255.255.255.0
s1(config-if)#ip default-gateway 192.168.99.1
s1(config)#int fa0/3
s1(config-if)#switchport mode trunk
```


- Paso 2: Configurar el S3




```
s1(config-if)#int fa0/1
s1(config-if)#switchport mode trunk
s1(config-if)#int range fa0/2, fa0/4, f0/5-24,g0/1-2
s1(config-if-range)#switchport mode access
s1(config-if-range)#int fa0/5
s1(config-if)#switchport access vlan 31
s1(config-if)#int range f0/2, f0/4, f0/6-24, g0/1-2
s1(config-if-range)#shutdown
s1(config-if-range)#do wr
Building configuration...
[OK]
s1(config-if-range)#exit
```

Paso 4: Verificar la conectividad de la red

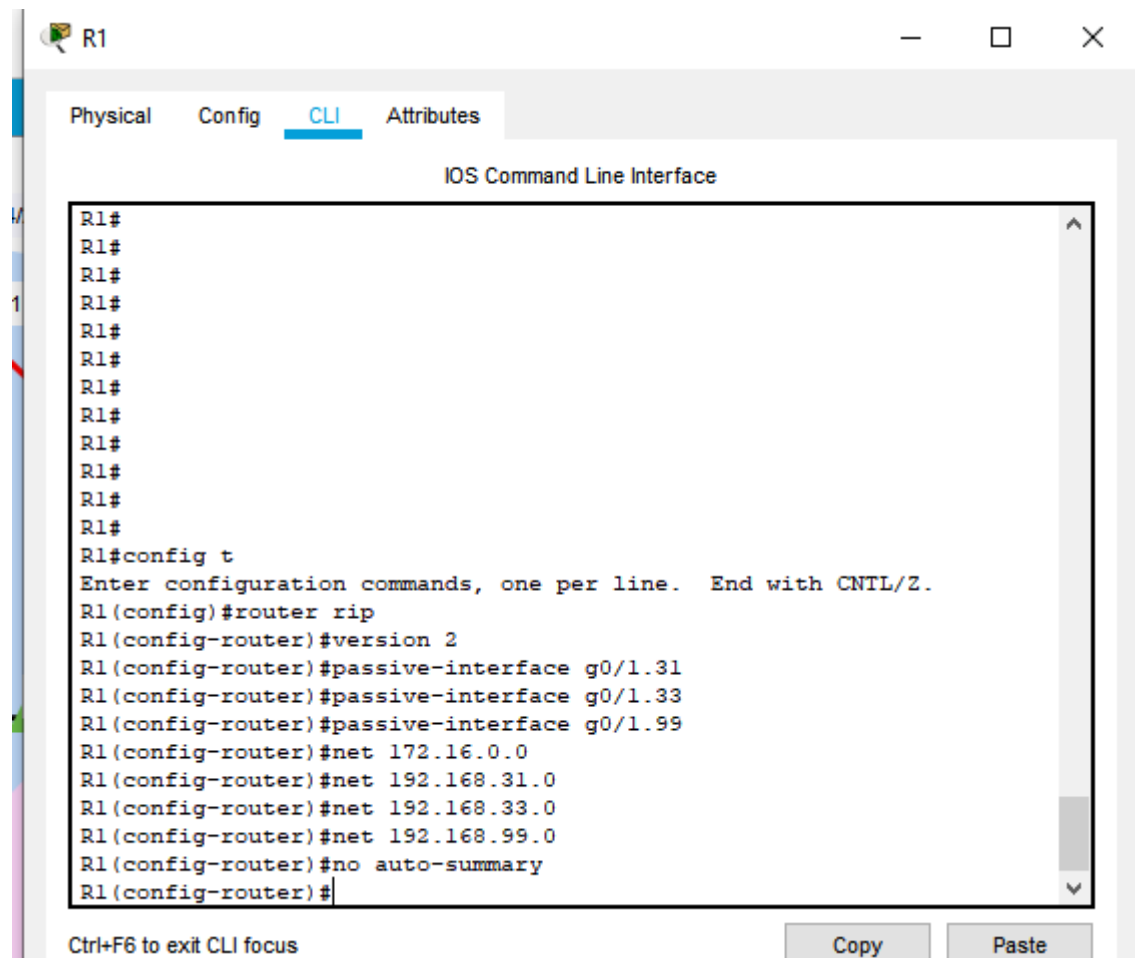
- Utilice el comando ping para probar la conectividad entre los switches y el R1.

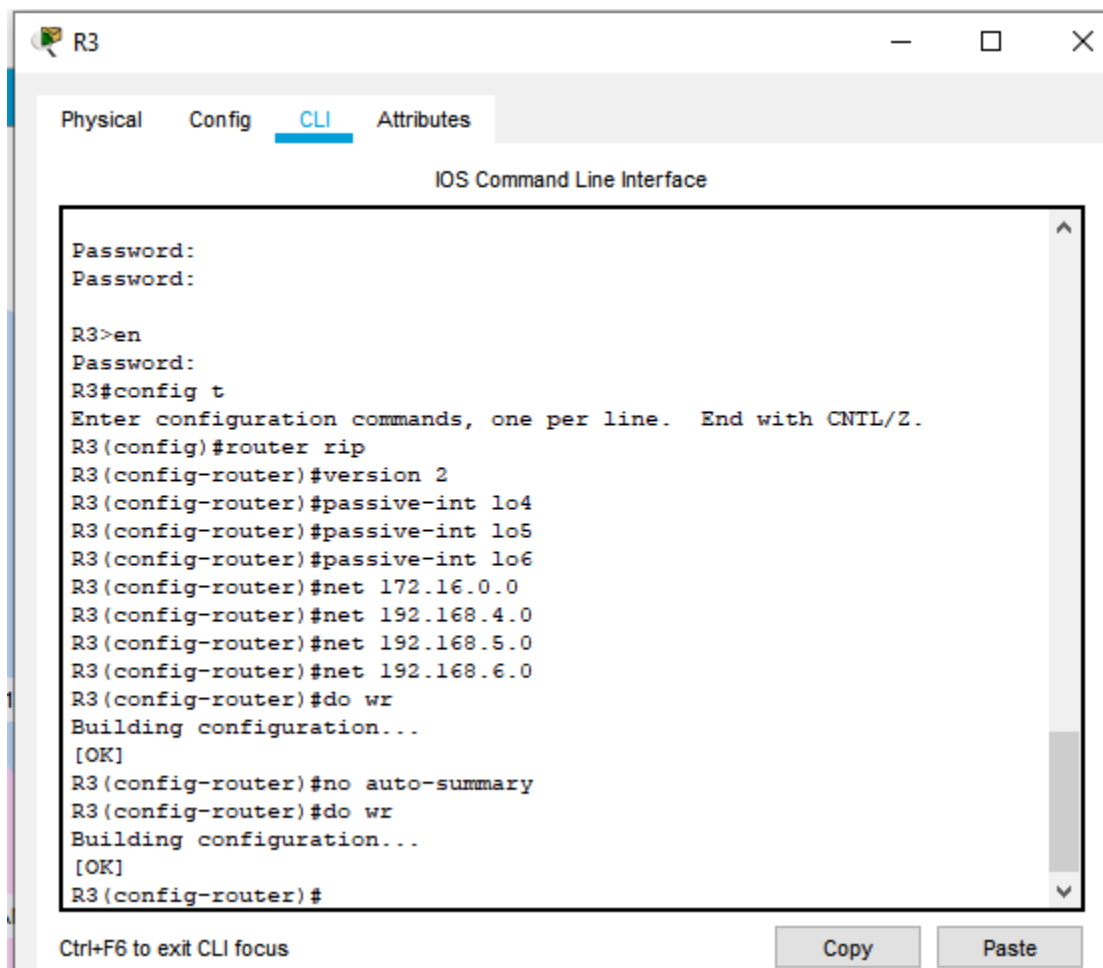
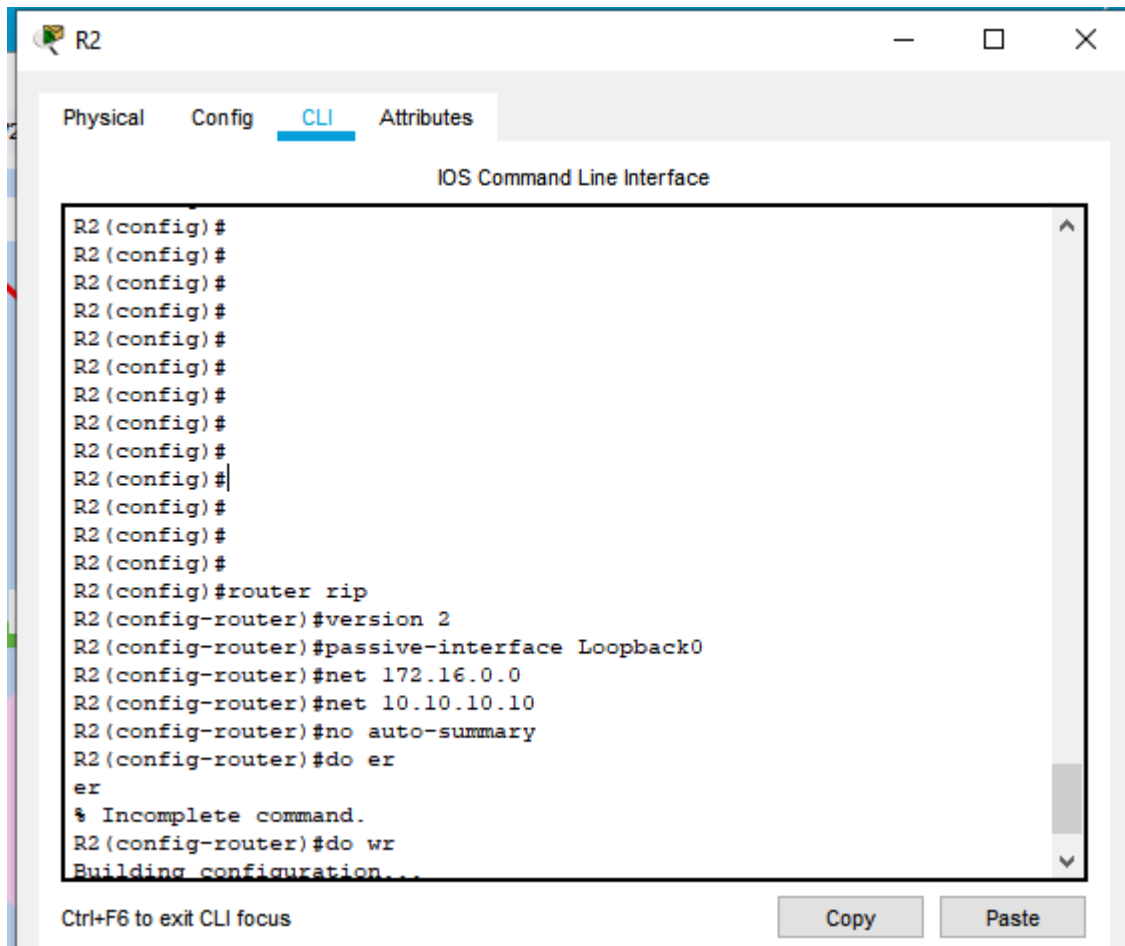
Event List				
Vis.	Time(sec)	Last Device	At Device	Type
	0.000	—	Switch3	ICMP
	0.002	Switch3	Switch1	ICMP
	0.004	Switch1	R1	ICMP
	0.006	R1	Switch1	ICMP
	0.008	Switch1	Switch3	ICMP

Event List				
Vis.	Time(sec)	Last Device	At Device	Type
	0.000	—	Switch1	ICMP
	0.002	Switch1	R1	ICMP
	0.005	R1	Switch1	ICMP

Parte 4: Configurar el protocolo de routing dinámico RIPv2

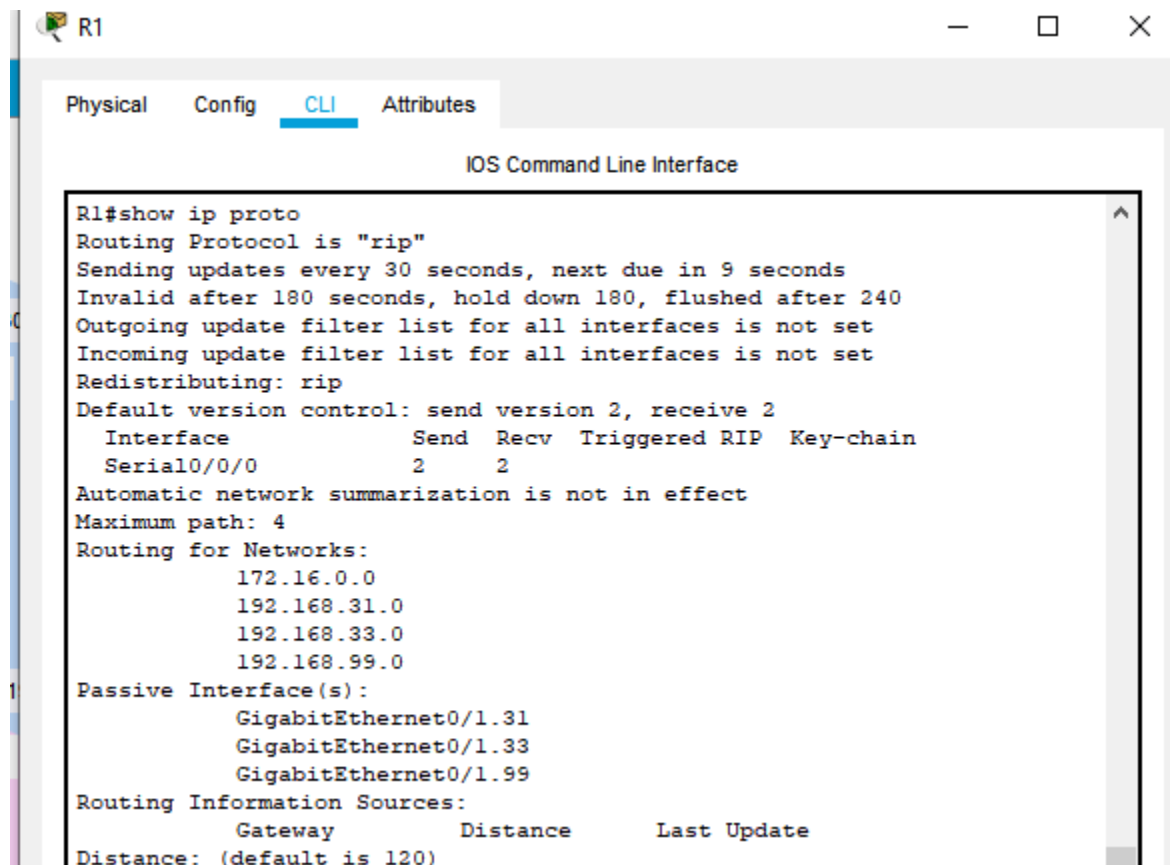
- Configurar el protocolo de routing dinámico RIPv2





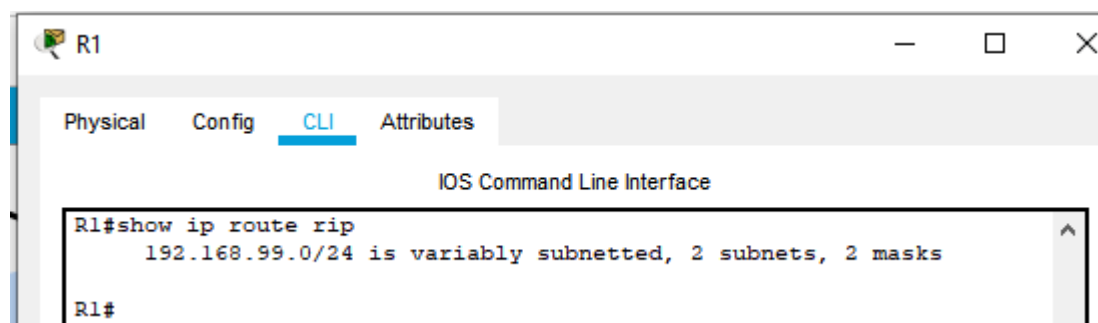
- Verifique la información de RIP

R1



The screenshot shows the R1 CLI window with the 'CLI' tab selected. The command 'show ip proto' has been entered, and the output is displayed in a scrollable text area. The output shows that the Routing Protocol is 'rip', updates are sent every 30 seconds, and the default version control is set to send and receive version 2. It also lists the interfaces configured for RIP: Serial0/0/0, GigabitEthernet0/1.31, GigabitEthernet0/1.33, and GigabitEthernet0/1.99. The maximum path is 4, and the routing information sources are listed with their gateways, distances, and last update times.

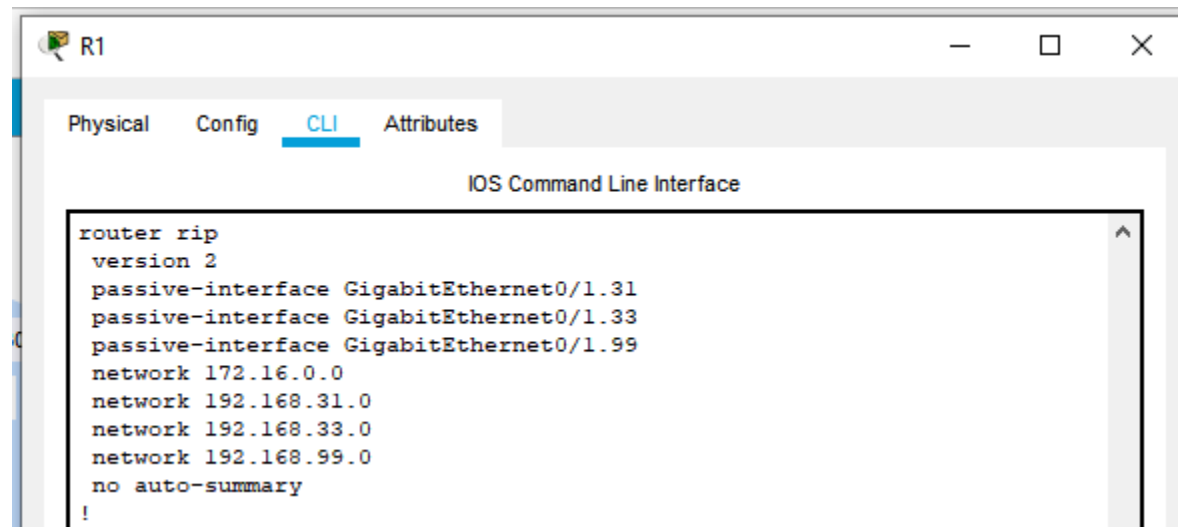
```
R1#show ip proto
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 9 seconds
Invalid after 180 seconds, hold down 180, flushed after 240
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Redistributing: rip
Default version control: send version 2, receive 2
  Interface          Send Recv Triggered RIP Key-chain
Serial0/0/0          2     2
Automatic network summarization is not in effect
Maximum path: 4
Routing for Networks:
  172.16.0.0
  192.168.31.0
  192.168.33.0
  192.168.99.0
Passive Interface(s):
  GigabitEthernet0/1.31
  GigabitEthernet0/1.33
  GigabitEthernet0/1.99
Routing Information Sources:
  Gateway            Distance    Last Update
Distance: (default is 120)
```



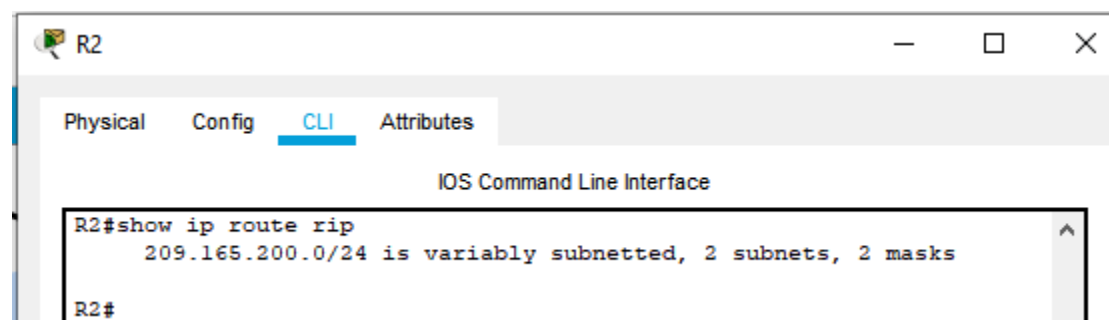
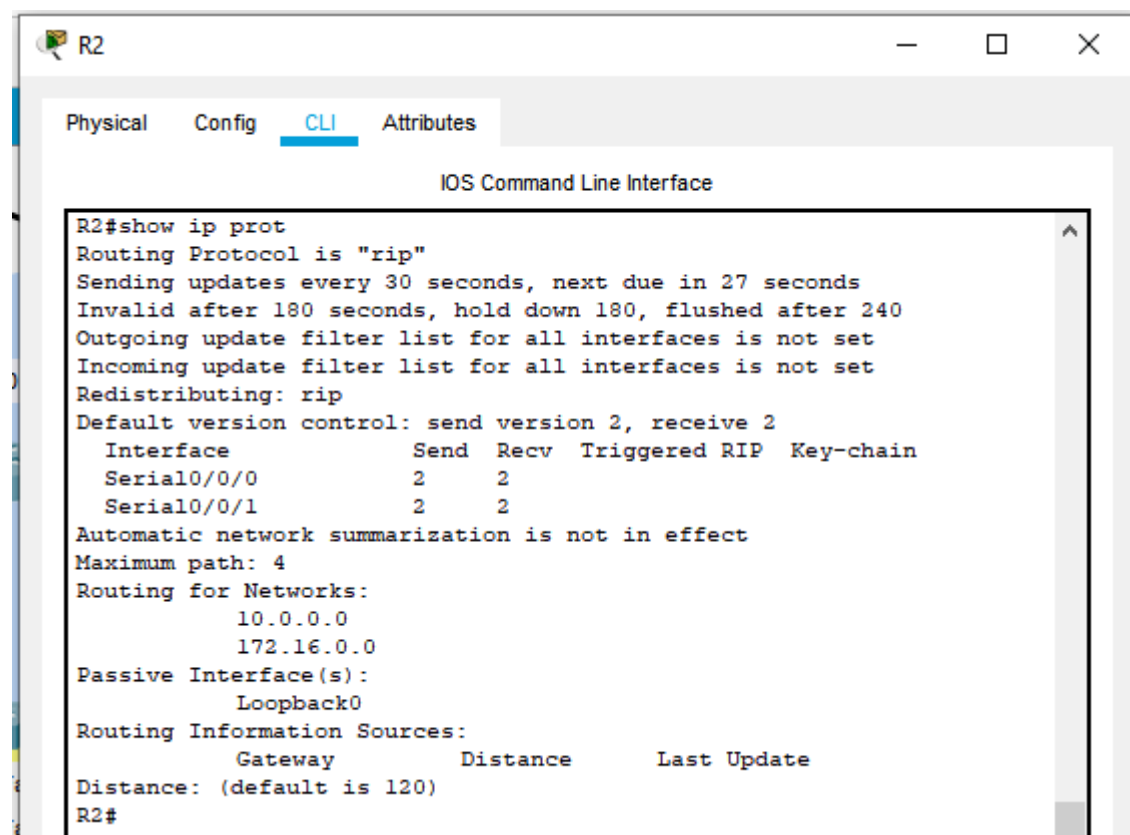
The screenshot shows the R1 CLI window with the 'CLI' tab selected. The command 'show ip route rip' has been entered, and the output is displayed in a scrollable text area. The output shows that the route 192.168.99.0/24 is variably subnetted, with 2 subnets and 2 masks.

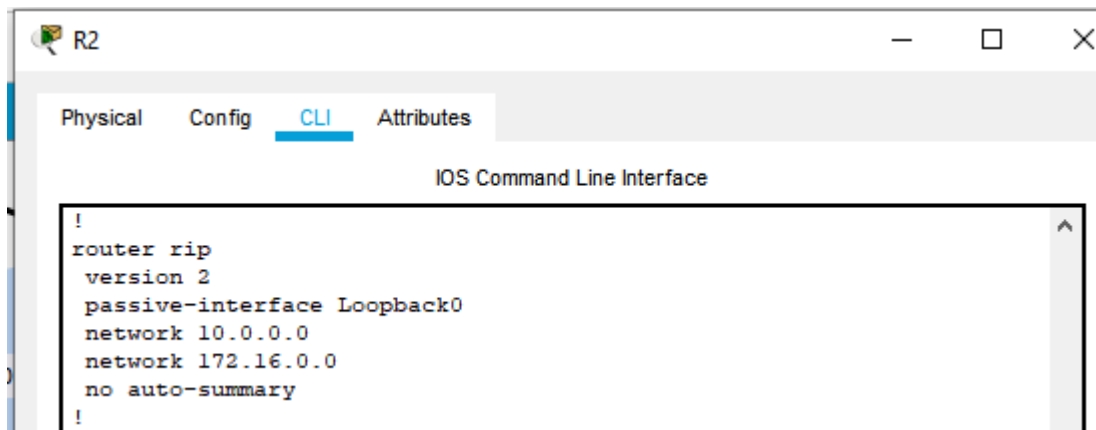
```
R1#show ip route rip
  192.168.99.0/24 is variably subnetted, 2 subnets, 2 masks
R1#
```

Show run

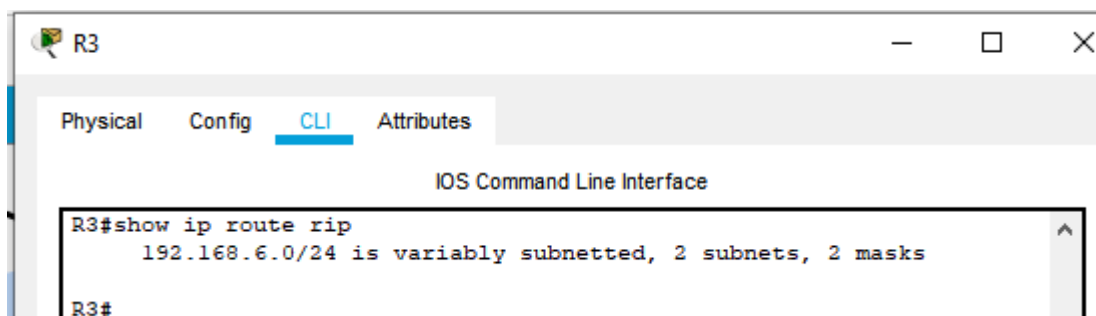
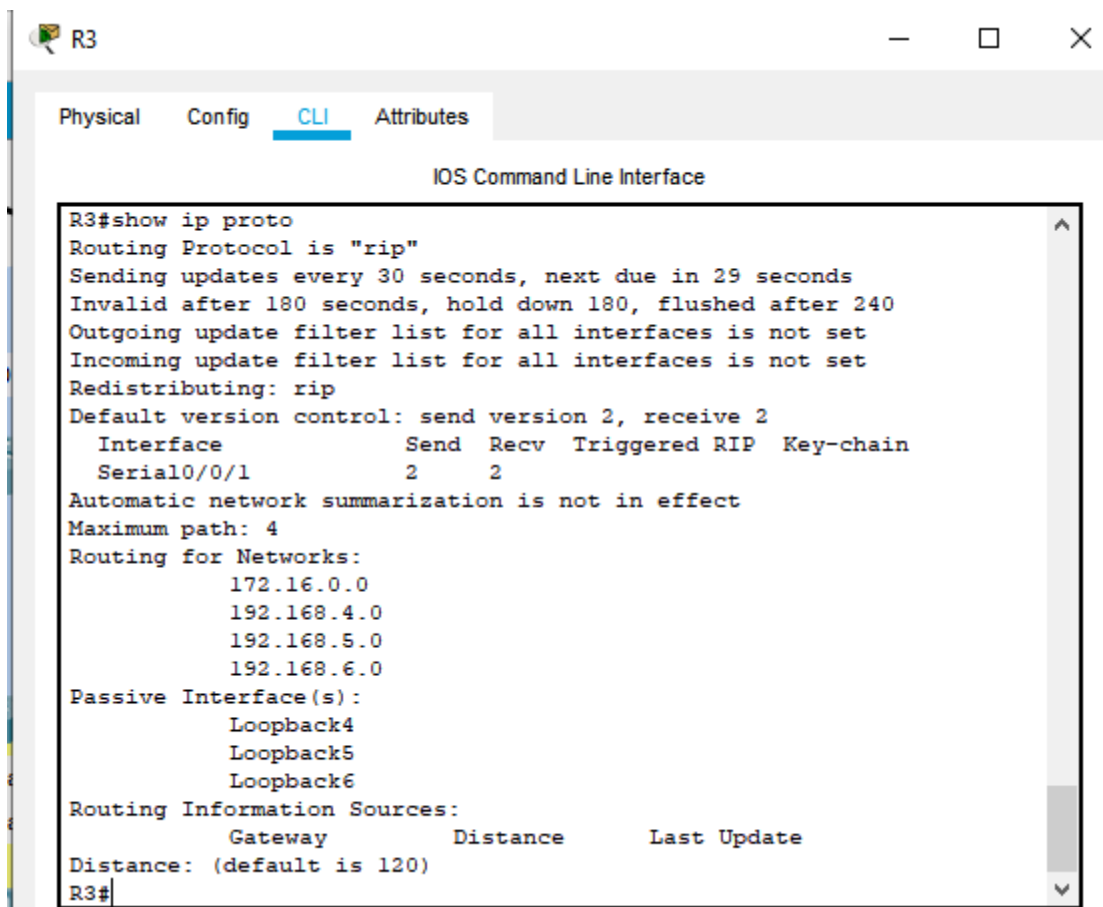


R2

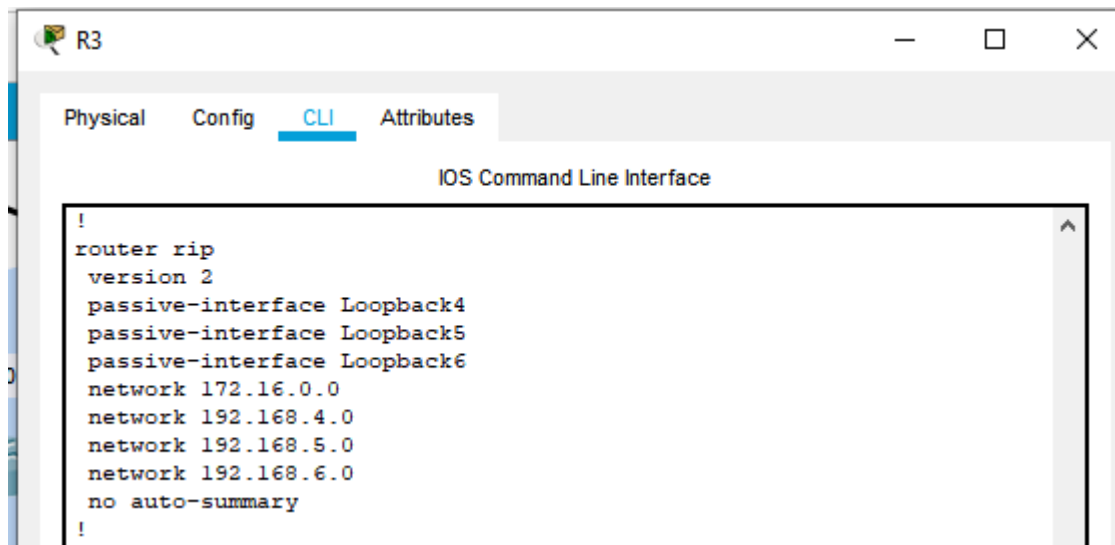




R3



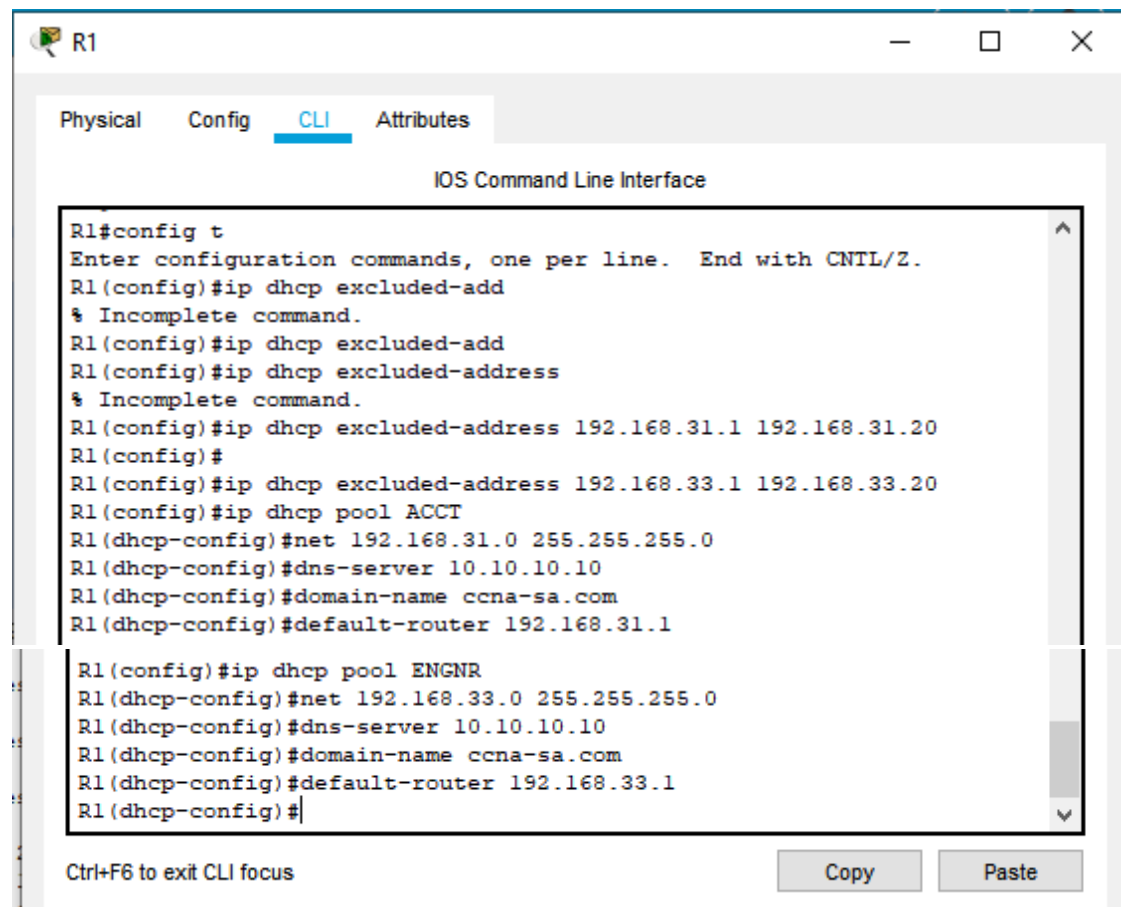
Show run R3

A screenshot of a network simulator window titled 'R3'. It has tabs for 'Physical', 'Config', 'CLI', and 'Attributes', with 'CLI' selected. The window shows the 'IOS Command Line Interface' with a configuration script. The script starts with '!' and ends with '!', containing commands for 'router rip', 'version 2', 'passive-interface' for Loopback4, Loopback5, and Loopback6, and 'network' statements for 172.16.0.0, 192.168.4.0, 192.168.5.0, and 192.168.6.0, followed by 'no auto-summary'.

```
!  
router rip  
  version 2  
  passive-interface Loopback4  
  passive-interface Loopback5  
  passive-interface Loopback6  
  network 172.16.0.0  
  network 192.168.4.0  
  network 192.168.5.0  
  network 192.168.6.0  
  no auto-summary  
!
```

Parte 5: implementar DHCP y NAT para IPv4

Paso 1: Configurar el R1 como servidor de DHCP para las VLAN 31 y 33

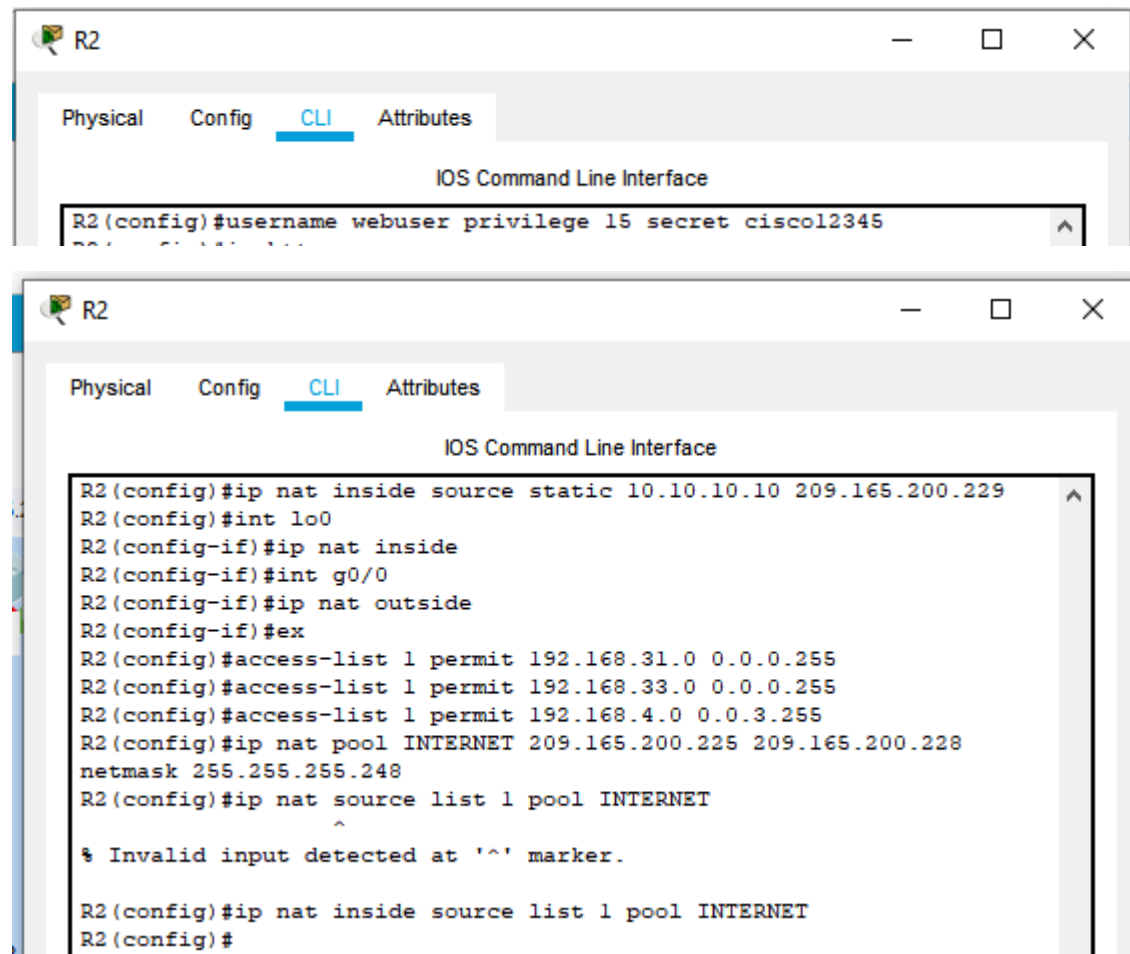
A screenshot of a network simulator window titled 'R1'. It has tabs for 'Physical', 'Config', 'CLI', and 'Attributes', with 'CLI' selected. The window shows the 'IOS Command Line Interface' with a configuration script. The script starts with 'R1#config t', followed by 'Enter configuration commands, one per line. End with CNTL/Z.'. It then shows two DHCP pool configurations: one for 'ACCT' on 192.168.31.0/24 and one for 'ENGNR' on 192.168.33.0/24. Both pools have a network statement, dns-server 10.10.10.10, domain-name ccna-sa.com, and default-router 192.168.31.1. The script ends with 'R1(dhcp-config)#'.

```
R1#config t  
Enter configuration commands, one per line. End with CNTL/Z.  
R1(config)#ip dhcp excluded-add  
% Incomplete command.  
R1(config)#ip dhcp excluded-add  
R1(config)#ip dhcp excluded-address  
% Incomplete command.  
R1(config)#ip dhcp excluded-address 192.168.31.1 192.168.31.20  
R1(config)#  
R1(config)#ip dhcp excluded-address 192.168.33.1 192.168.33.20  
R1(config)#ip dhcp pool ACCT  
R1(dhcp-config)#net 192.168.31.0 255.255.255.0  
R1(dhcp-config)#dns-server 10.10.10.10  
R1(dhcp-config)#domain-name ccna-sa.com  
R1(dhcp-config)#default-router 192.168.31.1  
  
R1(config)#ip dhcp pool ENGNR  
R1(dhcp-config)#net 192.168.33.0 255.255.255.0  
R1(dhcp-config)#dns-server 10.10.10.10  
R1(dhcp-config)#domain-name ccna-sa.com  
R1(dhcp-config)#default-router 192.168.33.1  
R1(dhcp-config)#
```

Ctrl+F6 to exit CLI focus

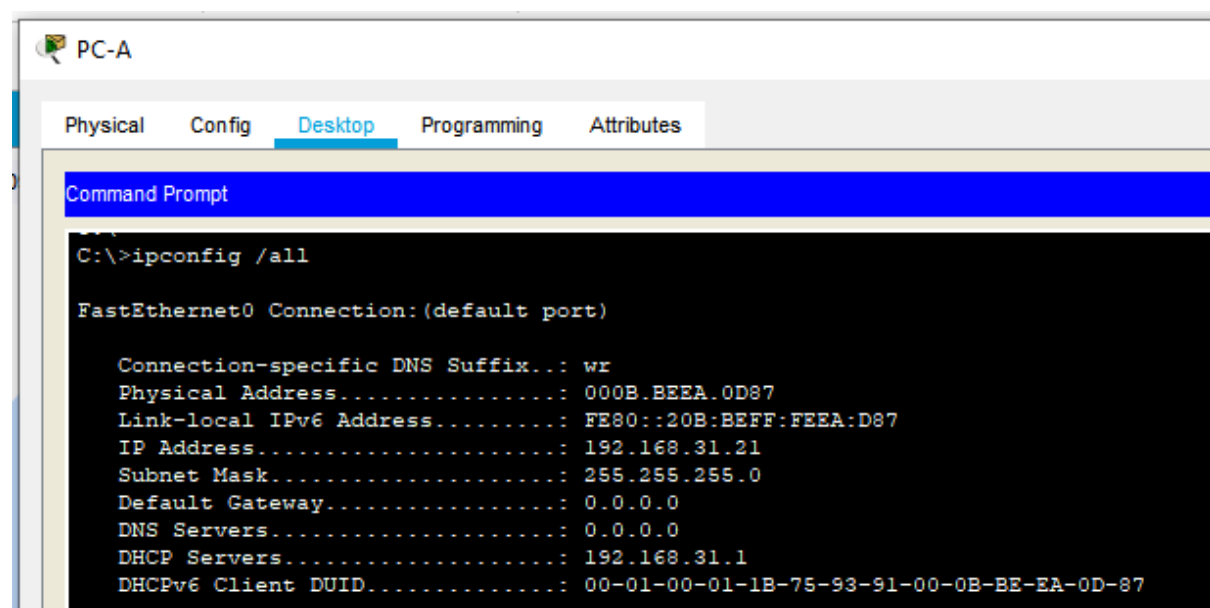
Copy Paste

Paso 2: Configurar la NAT estática y dinámica en el R2

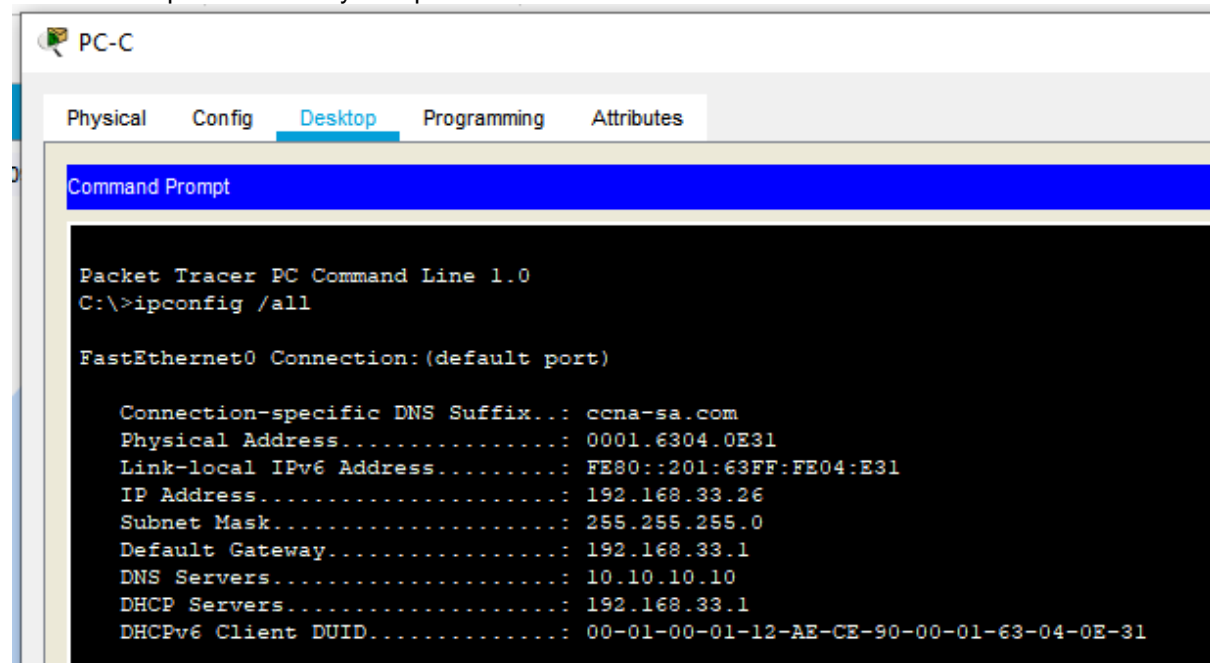


Paso 3: verificar el protocolo DHCP y la NAT estática.

Verificación que la PC-A haya adquirido información de IP del servidor de DHCP



Verificación que la PC-C haya adquirido información de IP del servidor de DHCP



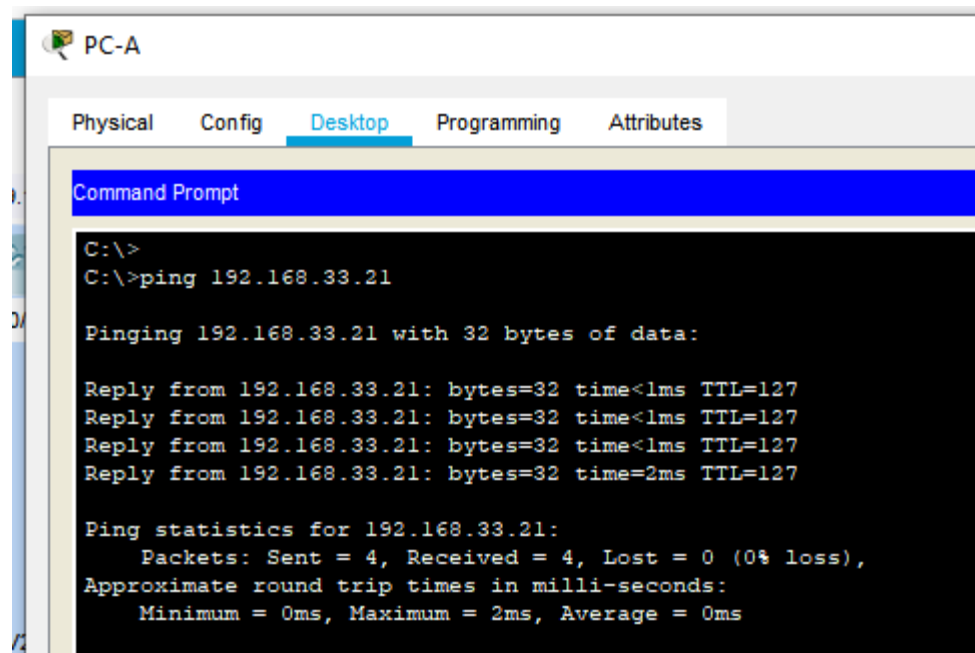
The screenshot shows the 'PC-C' window with the 'Desktop' tab selected. The 'Command Prompt' is open, displaying the output of the 'ipconfig /all' command. The output shows that the PC has successfully acquired an IP address (192.168.33.26) and other network parameters from a DHCP server.

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

FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...: ccna-sa.com
    Physical Address.....: 0001.6304.0E31
    Link-local IPv6 Address.....: FE80::201:63FF:FE04:E31
    IP Address.....: 192.168.33.26
    Subnet Mask.....: 255.255.255.0
    Default Gateway.....: 192.168.33.1
    DNS Servers.....: 10.10.10.10
    DHCP Servers.....: 192.168.33.1
    DHCPv6 Client DUID.....: 00-01-00-01-12-AE-CE-90-00-01-63-04-0E-31
```

Verificación que la PC-A puede hacer ping a la PC-C



The screenshot shows the 'PC-A' window with the 'Desktop' tab selected. The 'Command Prompt' is open, displaying the output of the 'ping 192.168.33.21' command. The output shows that the ping was successful, with 4 packets sent and 4 received, resulting in 0% loss.

```
PC-A

Physical  Config  Desktop  Programming  Attributes

Command Prompt

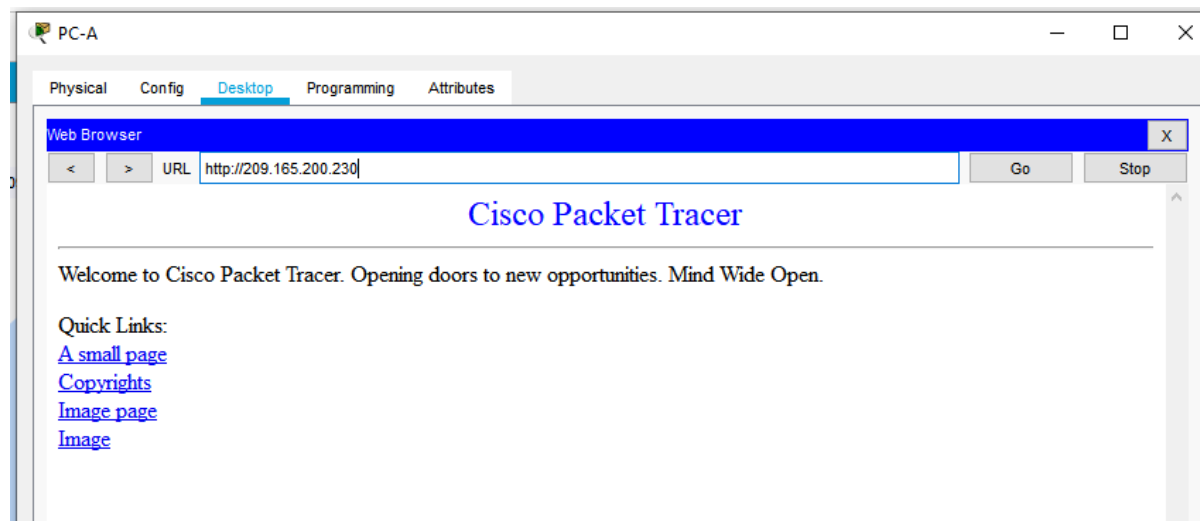
C:\>
C:\>ping 192.168.33.21

Pinging 192.168.33.21 with 32 bytes of data:

Reply from 192.168.33.21: bytes=32 time<1ms TTL=127
Reply from 192.168.33.21: bytes=32 time<1ms TTL=127
Reply from 192.168.33.21: bytes=32 time<1ms TTL=127
Reply from 192.168.33.21: bytes=32 time=2ms TTL=127

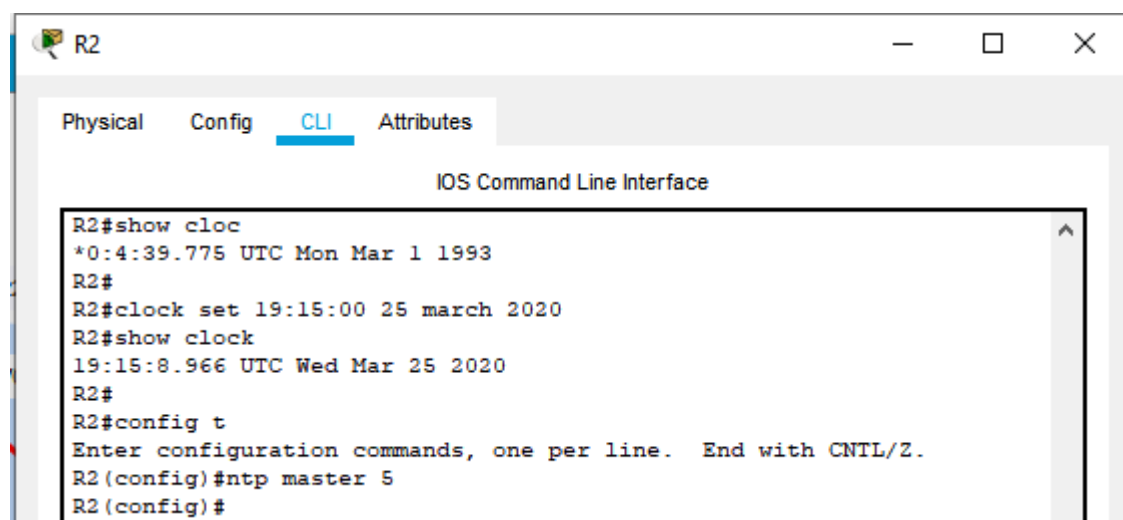
Ping statistics for 192.168.33.21:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms
```

Utilizar un navegador web en la computadora de Internet para acceder al servidor web (209.165.200.229). Iniciar sesión con el nombre de usuario webuser y la contraseña cisco12345

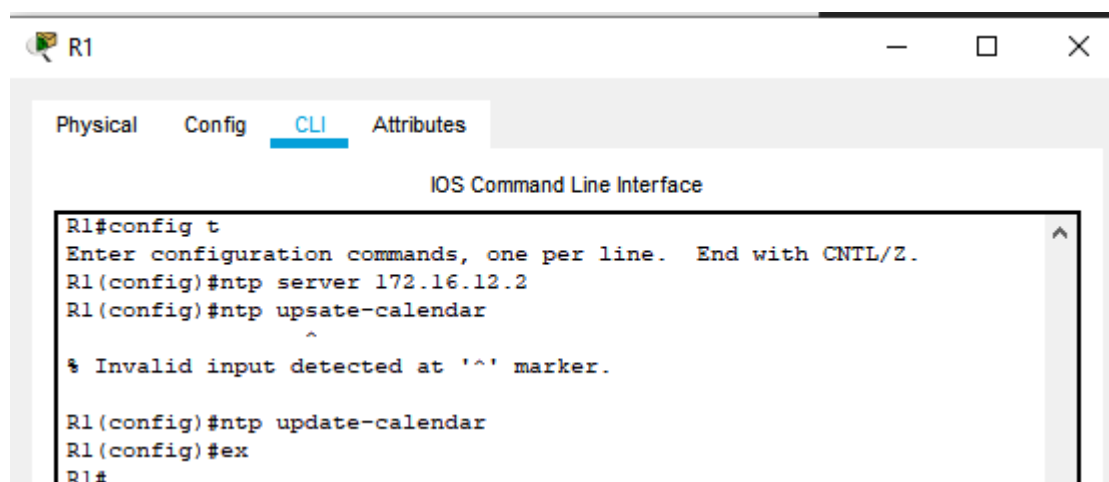


Parte 6: Configurar NTP

Ajustar la fecha y hora en R2, configurar R2 como un maestro NTP



Configurar R1 como un cliente NTP, configure R1 para actualizaciones de calendario periódicas con hora NTP, verifique la configuración de NTP en R1.



address	ref clock	st	when	poll	reach	delay
offset	disp					
~172.16.12.2	127.127.1.1	5	14	16	7	2.00
854219276763.00	0.12					
* sys.peer, # selected, + candidate, - outlier, x falseticker, ~ configured						
Rl#						

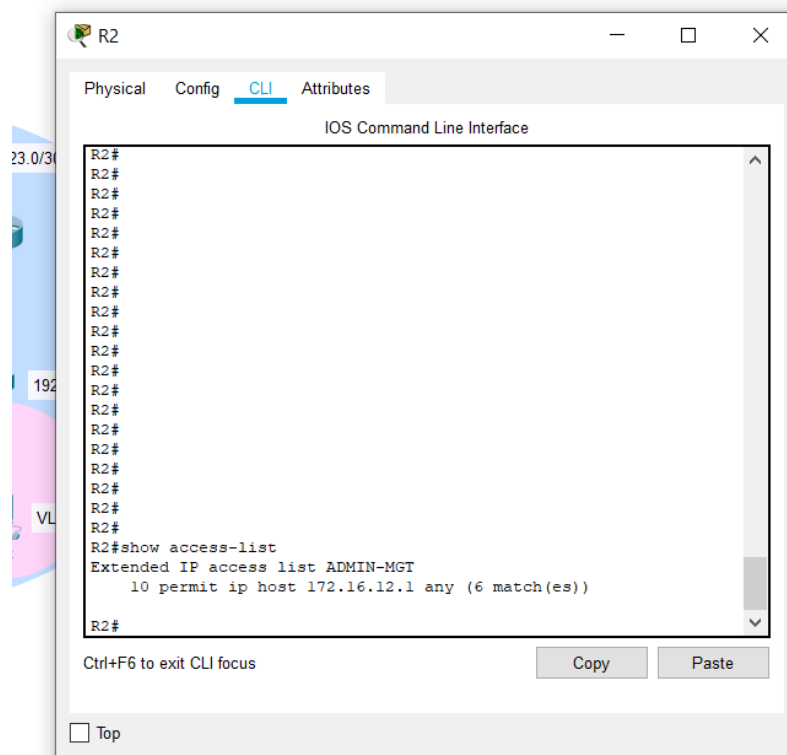
Ctrl+F6 to exit CLI focus

Copy

Paste

Parte 7: ejecución del los comandos:

Show acces-list



3.0/30



130



Show ip nat translation

