

ACTIVIDAD 5.2.7. CONFIGURACIÓN DE LISTAS ACL IPV4 ESTANDAR

Memoria Técnica

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7 A IELC

CONTENIDO

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 - 1.1. Objetivo
 - 1.2. Alcance
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I. ANTECEDENTES

- **I.1. Objetivos**
- **Parte 1. Verificar la conectividad**
- **Parte 2: Configurar y verificar ACL estándar numeradas y con nombre**
- **Parte 3: Modificar una ACL estándar**

I.2. Alcance

- La seguridad de red es una cuestión importante al diseñar y administrar redes IP. La capacidad para configurar reglas apropiadas para filtrar los paquetes, sobre la base de las políticas de seguridad establecidas, es una aptitud valiosa.
- En esta práctica de laboratorio, establecerá reglas de filtrado para dos oficinas representadas por el R1 y el R3. La administración estableció algunas políticas de acceso entre las redes LAN ubicadas en el R1 y el R3 que usted debe implementar. El router ISP que se ubica entre el R1 y el R3 no tendrá ninguna ACL. Usted no tiene permitido el acceso administrativo al router ISP, debido a que solo puede controlar y administrar sus propios equipos.

2. DESCRIPCIÓN TÉCNICA DE LA SOLUCIÓN

Parte 1. Verificar la conectividad

EN LA PARTE I, VERIFIQUE LA CONECTIVIDAD ENTRE LOS DISPOSITIVOS

```
Physical  Config  Desktop  Programming
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.30.3
Pinging 192.168.30.3 with 32 bytes of data:
Request timed out.
Reply from 192.168.30.3: bytes=32 time=7ms TTL=125
Reply from 192.168.30.3: bytes=32 time=7ms TTL=125
Reply from 192.168.30.3: bytes=32 time=7ms TTL=125
Ping statistics for 192.168.30.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 7ms, Maximum = 7ms, Average = 7ms
C:\>ping 192.168.40.3
Pinging 192.168.40.3 with 32 bytes of data:
Request timed out.
Reply from 192.168.40.3: bytes=32 time=7ms TTL=125
Reply from 192.168.40.3: bytes=32 time=7ms TTL=125
Reply from 192.168.40.3: bytes=32 time=7ms TTL=125
Ping statistics for 192.168.40.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 7ms, Maximum = 7ms, Average = 7ms
C:\>
```

```
PC-A
Physical  Config  Desktop  Programming
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.30.3
Pinging 192.168.30.3 with 32 bytes of data:
Request timed out.
Reply from 192.168.30.3: bytes=32 time=7ms TTL=125
Reply from 192.168.30.3: bytes=32 time=7ms TTL=125
Reply from 192.168.30.3: bytes=32 time=7ms TTL=125
Ping statistics for 192.168.30.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 7ms, Maximum = 7ms, Average = 7ms
C:\>ping 192.168.40.3
Pinging 192.168.40.3 with 32 bytes of data:
Request timed out.
Reply from 192.168.40.3: bytes=32 time=7ms TTL=125
Reply from 192.168.40.3: bytes=32 time=7ms TTL=125
Reply from 192.168.40.3: bytes=32 time=7ms TTL=125
Ping statistics for 192.168.40.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 7ms, Maximum = 7ms, Average = 7ms
C:\>ping 209.165.200.254
Pinging 209.165.200.254 with 32 bytes of data:
Request timed out.
Reply from 209.165.200.254: bytes=32 time=7ms TTL=125
Reply from 209.165.200.254: bytes=32 time=7ms TTL=125
Reply from 209.165.200.254: bytes=32 time=7ms TTL=125
Ping statistics for 209.165.200.254:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 7ms, Maximum = 7ms, Average = 7ms
C:\>
```

```
Physical  Config  CLI
IOS Command Line Interface
419430K bytes of physical memory.
419430K bytes of flash memory at bootflash.

Press RETURN to get started!

ALINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed state to up
ALINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/1, changed state to up
ALINE-4-CHANGED: Interface Serial0/1/0, changed state to up
ALINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed state to up
23:00:10: HDSPF-6-ADJCHG: Process 10, Hdr 2.2.2.2 on Serial0/1/0 from LOADING to FULL,
Loading Done
R1>
R1>
R1>ena
R1>ping 192.168.30.3
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echoes to 192.168.30.3, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 10/10/13 ms
R1>ping 192.168.40.3
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echoes to 192.168.40.3, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 9/10/13 ms
R1>
```

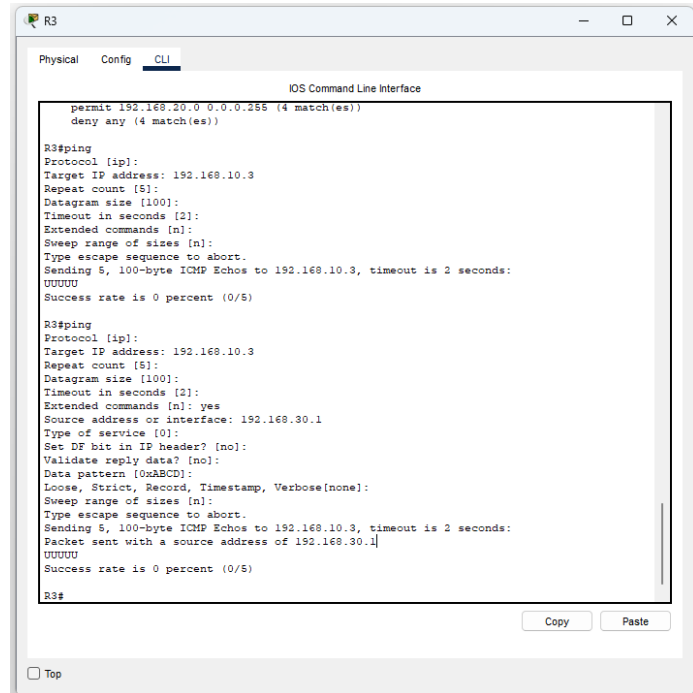
```
Physical  Config  CLI
IOS Command Line Interface
419430K bytes of DRAM-VOLATILE CONFIGURATION MEMORY.
419430K bytes of physical memory.
419430K bytes of flash memory at bootflash.

Press RETURN to get started!

ALINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed state to up
ALINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/1, changed state to up
ALINE-4-CHANGED: Interface Serial0/1/1, changed state to up
ALINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/1, changed state to up
23:00:10: HDSPF-6-ADJCHG: Process 10, Hdr 2.2.2.2 on Serial0/1/1 from LOADING to FULL,
Loading Done
R2>
R2>
R2>ena
R2>ping 192.168.30.3
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echoes to 192.168.30.3, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 10/11/12 ms
R2>ping 192.168.20.3
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echoes to 192.168.20.3, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 10/12/17 ms
R2>
```

2. DESCRIPCIÓN TÉCNICA DE LA SOLUCIÓN

**Parte 2: Configurar y verificar las ACL
numeradas y con nombre estándar**



Physical Config CLI

IOS Command Line Interface

```
permit 192.168.20.0 0.0.0.255 (4 match(es))
deny any (4 match(es))

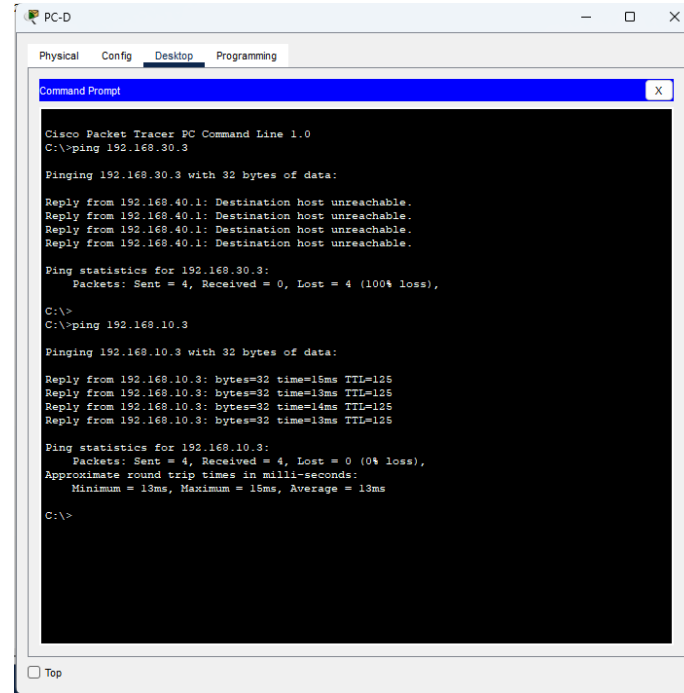
R3#ping
Protocol [ip]:
Target IP address: 192.168.10.3
Repeat count [5]:
Datagram size [100]:
Timeout in seconds [3]:
Extended commands [n]:
Sweep range of sizes [n]:
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.10.3, timeout is 2 seconds:
UUUUU
Success rate is 0 percent (0/5)

R3#ping
Protocol [ip]:
Target IP address: 192.168.10.3
Repeat count [5]:
Datagram size [100]:
Timeout in seconds [3]:
Extended commands [n]: yes
Source address or interface: 192.168.30.1
Type of service [0]:
Set DF bit in IP header? [no]:
Validate reply data? [no]:
Data pattern [0xABCD]:
Loose, Strict, Record, Timestamp, Verbose[none]:
Sweep range of sizes [n]:
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.10.3, timeout is 2 seconds:
Packet sent with a source address of 192.168.30.1
UUUUU
Success rate is 0 percent (0/5)

R3#
```

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Physical Config Desktop Programming

Command Prompt

Cisco Packet Tracer PC Command Line 1.0

```
C:\>ping 192.168.30.3

Pinging 192.168.30.3 with 32 bytes of data:

Reply from 192.168.40.1: Destination host unreachable.
Reply from 192.168.40.1: Destination host unreachable.
Reply from 192.168.40.1: Destination host unreachable.
Reply from 192.168.40.1: Destination host unreachable.

Ping statistics for 192.168.30.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>

C:\>ping 192.168.10.3

Pinging 192.168.10.3 with 32 bytes of data:

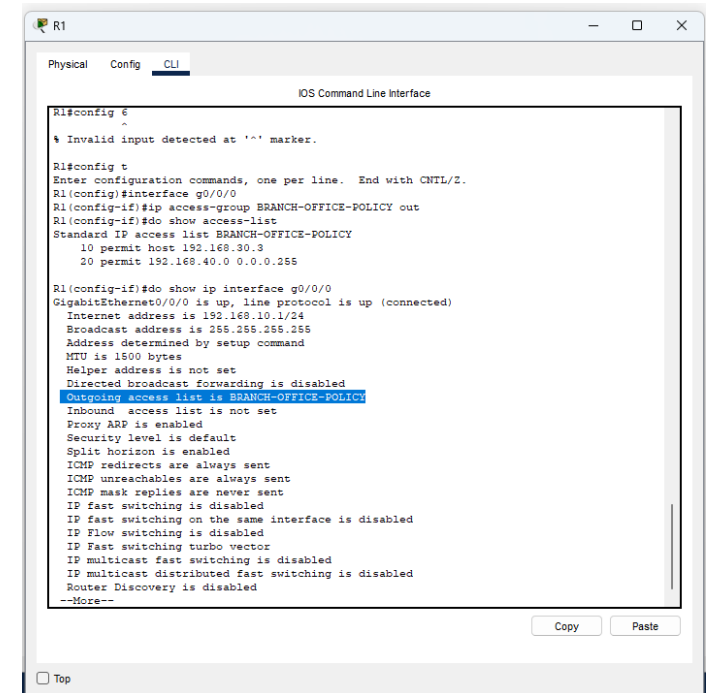
Reply from 192.168.10.3: bytes=32 time=15ms TTL=125
Reply from 192.168.10.3: bytes=32 time=14ms TTL=125
Reply from 192.168.10.3: bytes=32 time=14ms TTL=125
Reply from 192.168.10.3: bytes=32 time=13ms TTL=125

Ping statistics for 192.168.10.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 13ms, Maximum = 15ms, Average = 13ms

C:\>
```

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Physical Config CLI

IOS Command Line Interface

```
R1#config e
^
* Invalid input detected at '^' marker.

R1#config t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface g0/0/0
R1(config-if)#ip access-group BRANCH-OFFICE-POLICY out
R1(config-if)#do show access-list
Standard IP access list BRANCH-OFFICE-POLICY
    10 permit host 192.168.30.3
    20 permit 192.168.40.0 0.0.0.255

R1(config-if)#do show ip interface g0/0/0
GigabitEthernet0/0/0 is up, line protocol is up (connected)
Internet address is 192.168.10.1/24
Broadcast address is 255.255.255.255
Address determined by setup command
MTU is 1500 bytes
Helper address is not set
Directed broadcast forwarding is disabled
Outgoing access list is BRANCH-OFFICE-POLICY
Inbound access list is not set
Proxy ARP is enabled
Security level is default
Split horizon is enabled
ICMP redirects are always sent
ICMP unreachable are always sent
ICMP mask replies are never sent
IP fast switching is disabled
IP fast switching on the same interface is disabled
IP Flow switching is disabled
IP Fast switching turbo vector
IP multicast fast switching is disabled
IP multicast distributed fast switching is disabled
Router Discovery is disabled
--More--
```

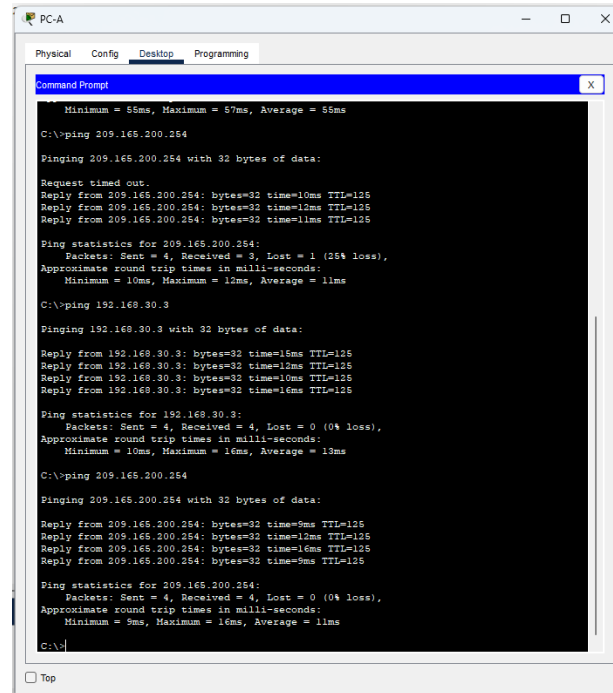
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PASO 2: CONFIGURAR UNA ACL ESTÁNDAR CON NOMBRE.

2. DESCRIPCIÓN TÉCNICA DE LA SOLUCIÓN

**Parte 3: Modificar una ACL
estándar**



PC-A

Physical Config Desktop Programming

Command Prompt

```
Minimum = 55ms, Maximum = 57ms, Average = 56ms
C:\>ping 209.165.200.254

Pinging 209.165.200.254 with 32 bytes of data:

Request timed out.
Reply from 209.165.200.254: bytes=32 time=10ms TTL=125
Reply from 209.165.200.254: bytes=32 time=12ms TTL=125
Reply from 209.165.200.254: bytes=32 time=11ms TTL=125

Ping statistics for 209.165.200.254:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 10ms, Maximum = 12ms, Average = 11ms

C:\>ping 192.168.30.3

Pinging 192.168.30.3 with 32 bytes of data:

Reply from 192.168.30.3: bytes=32 time=15ms TTL=125
Reply from 192.168.30.3: bytes=32 time=13ms TTL=125
Reply from 192.168.30.3: bytes=32 time=10ms TTL=125
Reply from 192.168.30.3: bytes=32 time=16ms TTL=125

Ping statistics for 192.168.30.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 10ms, Maximum = 16ms, Average = 13ms

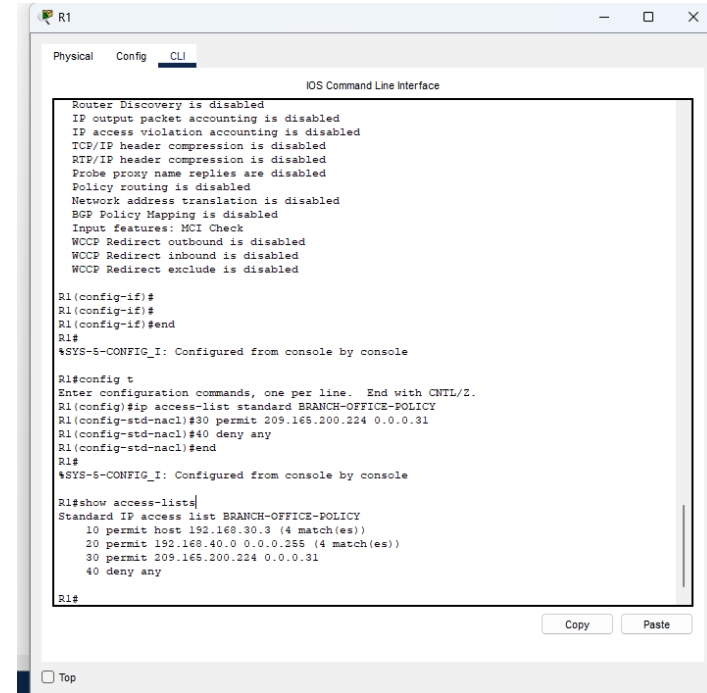
C:\>ping 209.165.200.254

Pinging 209.165.200.254 with 32 bytes of data:

Reply from 209.165.200.254: bytes=32 time=9ms TTL=125
Reply from 209.165.200.254: bytes=32 time=12ms TTL=125
Reply from 209.165.200.254: bytes=32 time=16ms TTL=125
Reply from 209.165.200.254: bytes=32 time=9ms TTL=125

Ping statistics for 209.165.200.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 9ms, Maximum = 16ms, Average = 11ms

C:\>
```



R1

Physical Config CLI

IOS Command Line Interface

```
Router Discovery is disabled
IP output packet accounting is disabled
IP access violation accounting is disabled
TCP/IP header compression is disabled
RTP/IP header compression is disabled
Probe proxy name replies are disabled
Policy routing is disabled
Network address translation is disabled
BGP Policy Mapping is disabled
Input features: MCI Check
WCCP Redirect outbound is disabled
WCCP Redirect inbound is disabled
WCCP Redirect exclude is disabled

R1(config-if)#
R1(config-if)#
R1(config-if)#end
R1#
$SYS-5-CONFIG_I: Configured from console by console

R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#ip access-list standard BRANCH-OFFICE-POLICY
R1(config-std-nacl)#30 permit 209.165.200.224 0.0.0.31
R1(config-std-nacl)#40 deny any
R1(config-std-nacl)#end
R1#
$SYS-5-CONFIG_I: Configured from console by console

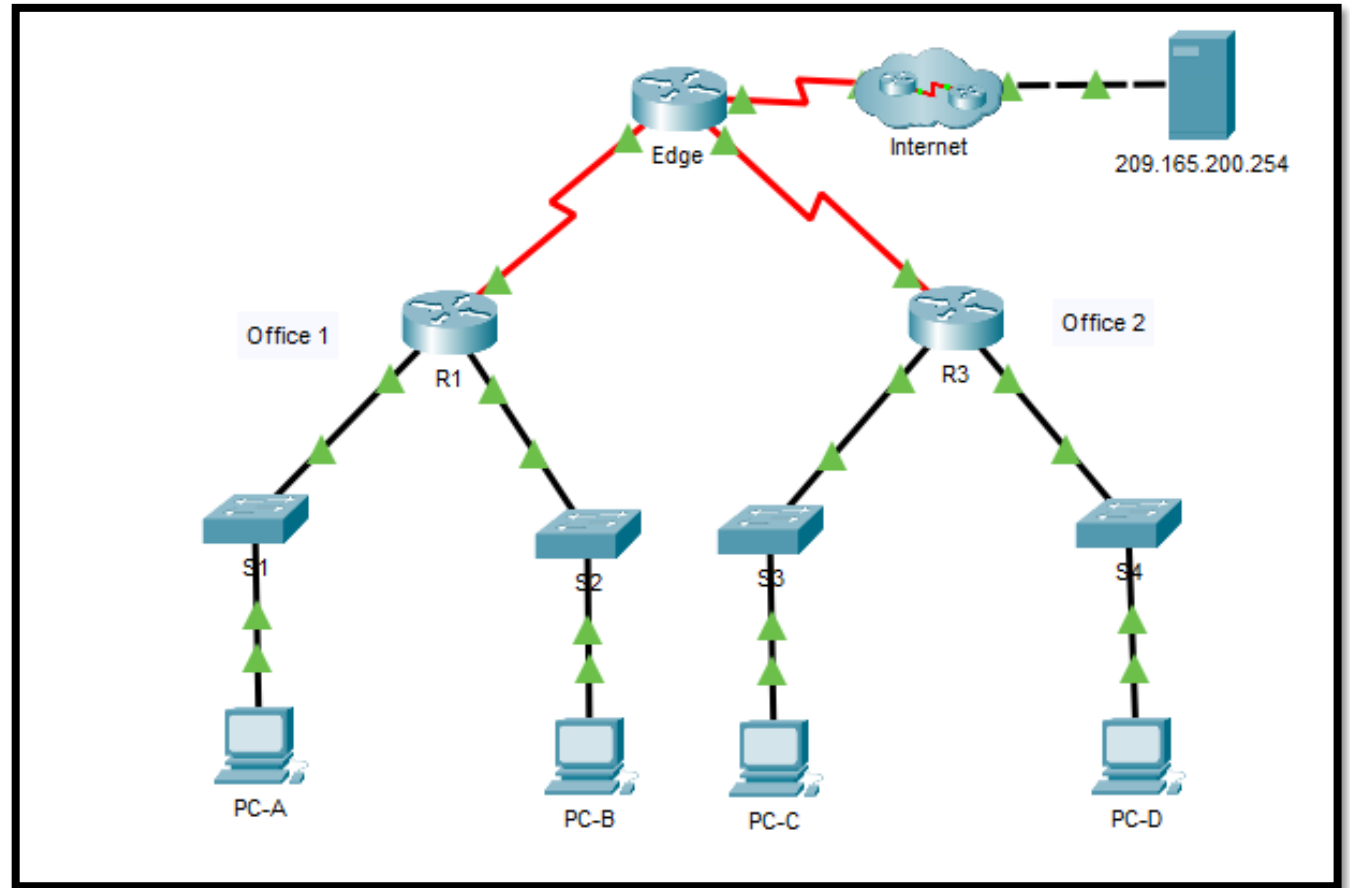
R1#show access-lists
Standard IP access list BRANCH-OFFICE-POLICY
 10 permit host 192.168.30.3 (4 match(es))
 20 permit 192.168.40.0 0.0.0.255 (4 match(es))
 30 permit 209.165.200.224 0.0.0.31
 40 deny any

R1#
```

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PASO I: MODIFICAR Y VERIFICAR UNA ACL ESTÁNDAR CON NOMBRE.

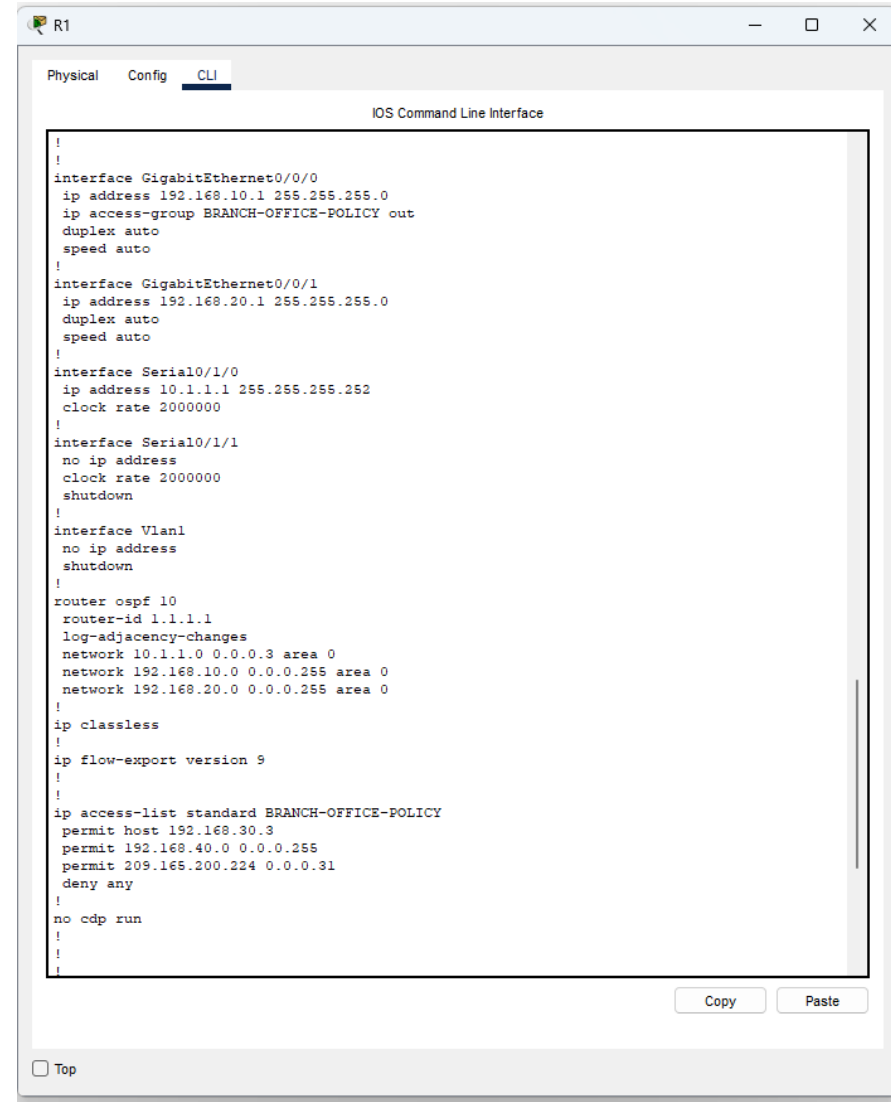
3.ESQUEMA GENERAL



4.SCRIPT CTC


Dispositivo	Interfaz	Dirección IP	Máscara de subred	Puerta de enlace predeterminada
R1	G0/0/0	192.168.10.1	255.255.255.0	N/D
	G0/0/1	192.168.20.1	255.255.255.0	
	S0/1/0 (DCE)	10.1.1.1	255.255.255.252	
empresarial	S0/1/0	10.1.1.2	255.255.255.252	N/D
	S0/1/1 (DCE)	10.2.2.2	255.255.255.252	
	S0/2/1	209.165.200.225	255.255.255.224	
R3	G0/0/0	192.168.30.1	255.255.255.0	N/D
	G0/0/1	192.168.40.1	255.255.255.0	
	/1/1	10.2.2.1	255.255.255.252	
S1	VLAN 1	192.168.10.11	255.255.255.0	192.168.10.1
S2	VLAN 1	192.168.20.11	255.255.255.0	192.168.20.1
S3	VLAN 1	192.168.30.11	255.255.255.0	192.168.30.1
S4	VLAN 1	192.168.40.11	255.255.255.0	192.168.40.1
PC-A	NIC	192.168.10.3	255.255.255.0	192.168.10.1
PC-B	NIC	192.168.20.3	255.255.255.0	192.168.20.1
PC-C	NIC	192.168.30.3	255.255.255.0	192.168.30.1
PC-D	NIC	192.168.40.3	255.255.255.0	192.168.40.1

5. PRUEBAS



```
!
!
interface GigabitEthernet0/0/0
ip address 192.168.10.1 255.255.255.0
ip access-group BRANCH-OFFICE-POLICY out
duplex auto
speed auto
!
interface GigabitEthernet0/0/1
ip address 192.168.20.1 255.255.255.0
duplex auto
speed auto
!
interface Serial0/1/0
ip address 10.1.1.1 255.255.255.252
clock rate 2000000
!
interface Serial0/1/1
no ip address
clock rate 2000000
shutdown
!
interface Vlan1
no ip address
shutdown
!
router ospf 10
router-id 1.1.1.1
log-adjacency-changes
network 10.1.1.0 0.0.0.3 area 0
network 192.168.10.0 0.0.0.255 area 0
network 192.168.20.0 0.0.0.255 area 0
!
ip classless
!
ip flow-export version 9
!
!
ip access-list standard BRANCH-OFFICE-POLICY
permit host 192.168.30.3
permit 192.168.40.0 0.0.0.255
permit 209.165.200.224 0.0.0.31
deny any
!
no cdp run
!
!
```

5. PRUEBAS



The screenshot shows a Cisco IOS Command Line Interface window for router R3. The window has tabs for Physical, Config, and CLI, with CLI selected. The configuration text is as follows:

```
!
interface GigabitEthernet0/0/0
ip address 192.168.30.1 255.255.255.0
ip access-group 1 out
duplex auto
speed auto
!
interface GigabitEthernet0/0/1
ip address 192.168.40.1 255.255.255.0
duplex auto
speed auto
!
interface Serial0/1/0
no ip address
clock rate 2000000
shutdown
!
interface Serial0/1/1
ip address 10.2.2.1 255.255.255.252
!
interface Vlan1
no ip address
shutdown
!
router ospf 10
router-id 3.3.3.3
log-adjacency-changes
network 10.2.2.0 0.0.0.3 area 0
network 192.168.30.0 0.0.0.255 area 0
network 192.168.40.0 0.0.0.255 area 0
!
ip classless
!
ip flow-export version 9
!
!
access-list 1 remark Allow R1 LANs Access
access-list 1 permit 192.168.10.0 0.0.0.255
access-list 1 permit 192.168.20.0 0.0.0.255
access-list 1 deny any
!
no cdp run
!
!
!
!
!
!
line con 0
!
```

At the bottom right of the CLI window, there are 'Copy' and 'Paste' buttons. At the bottom left of the window, there is a 'Top' button.