UNIVERSIDAD NACIONAL ABIERTA Y A DISTANCIA

ESCUELA DE CIENCIAS BÁSICAS, TECNOLOGÍAS E INGENIERÍAS

DIPLOMADO DE PROFUNDIZACIÓN CISCO (DISEÑO E IMPLEMENTACIÓN DE SOLUCIONES INTEGRADAS LAN / WAN)

EVALUACIÓN – PRUEBA DE HABILIDADES PRÁCTICAS CCNA

PRESENTADO A

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UNAD

MAYO 2018

INTRODUCCIÓN

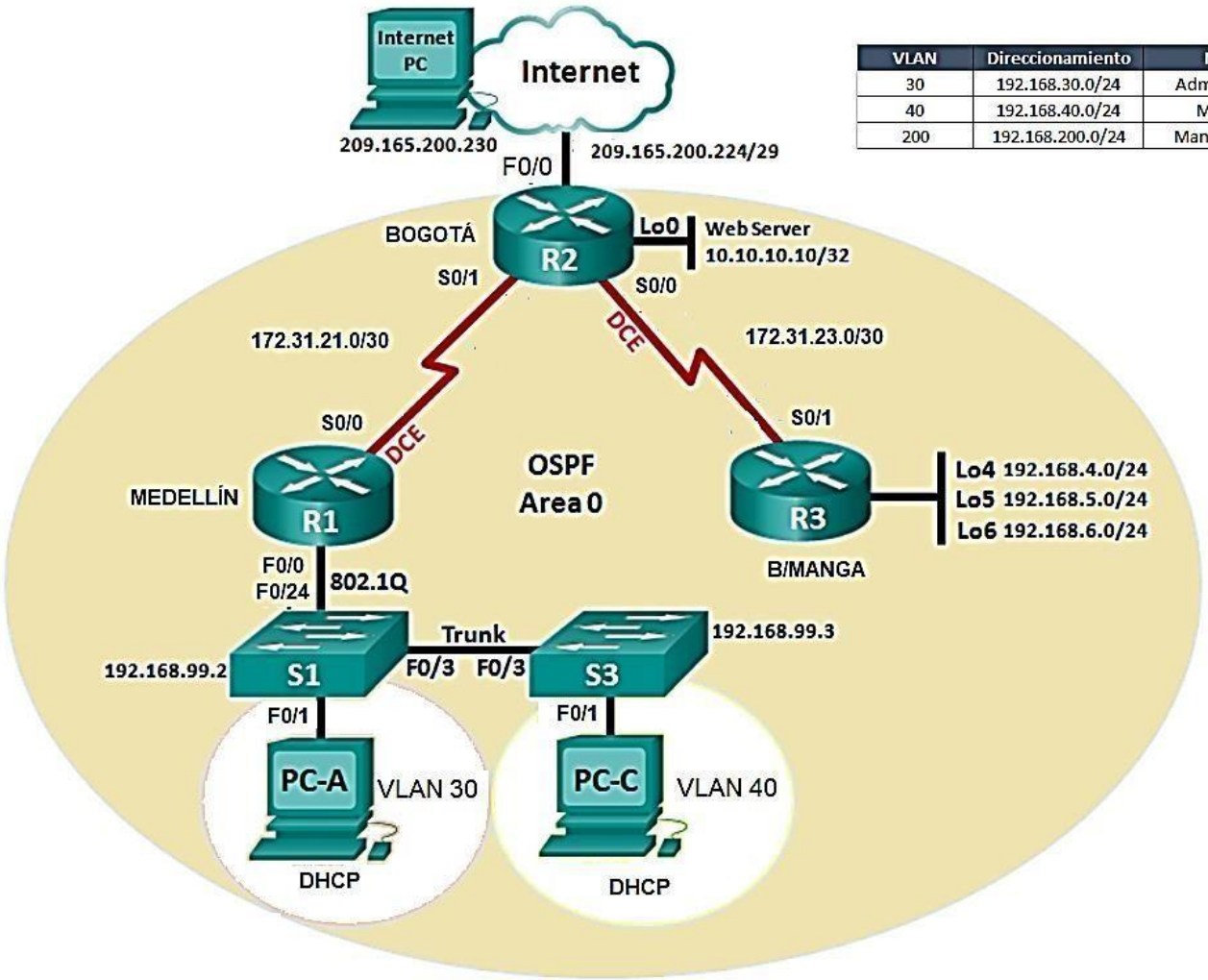
En el presente documento se desarrolla la prueba final del diplomado de redes a través de la plataforma de simulación Packet Tracer, allí se tratarán lo diferentes temas vistos desde la Introducción a Networking y Routing & Switching (CCNA1 y CCNA2), cuyo principal objetivo es abarcar los conceptos más básicos de red, con el fin de desarrollar las diferentes aptitudes que se requieren para diseñar, implementar y poner en marcha redes pequeñas con gran variedad de aplicaciones en el contexto en el que haga necesario.

Por lo tanto, a continuación se observarán cada uno de los pasos desarrollados; de acuerdo a la prueba de habilidades implementada en una Empresa de Tecnología que posee tres sucursales, donde se asume el rol de administrador de la red y con la información presentada por el ejercicio, se pone en marcha el trabajo de configuración de cada uno de los dispositivos.

Descripción del escenario propuesto para la prueba de habilidades

Escenario: Una empresa de Tecnología posee tres sucursales distribuidas en las ciudades de Bogotá, Medellín y Bucaramanga, en donde el estudiante será el administrador de la red, el cual deberá configurar e interconectar entre sí cada uno de los dispositivos que forman parte del escenario, acorde con los lineamientos establecidos para el direccionamiento IP, protocolos de enrutamiento y demás aspectos que forman parte de la topología de red.

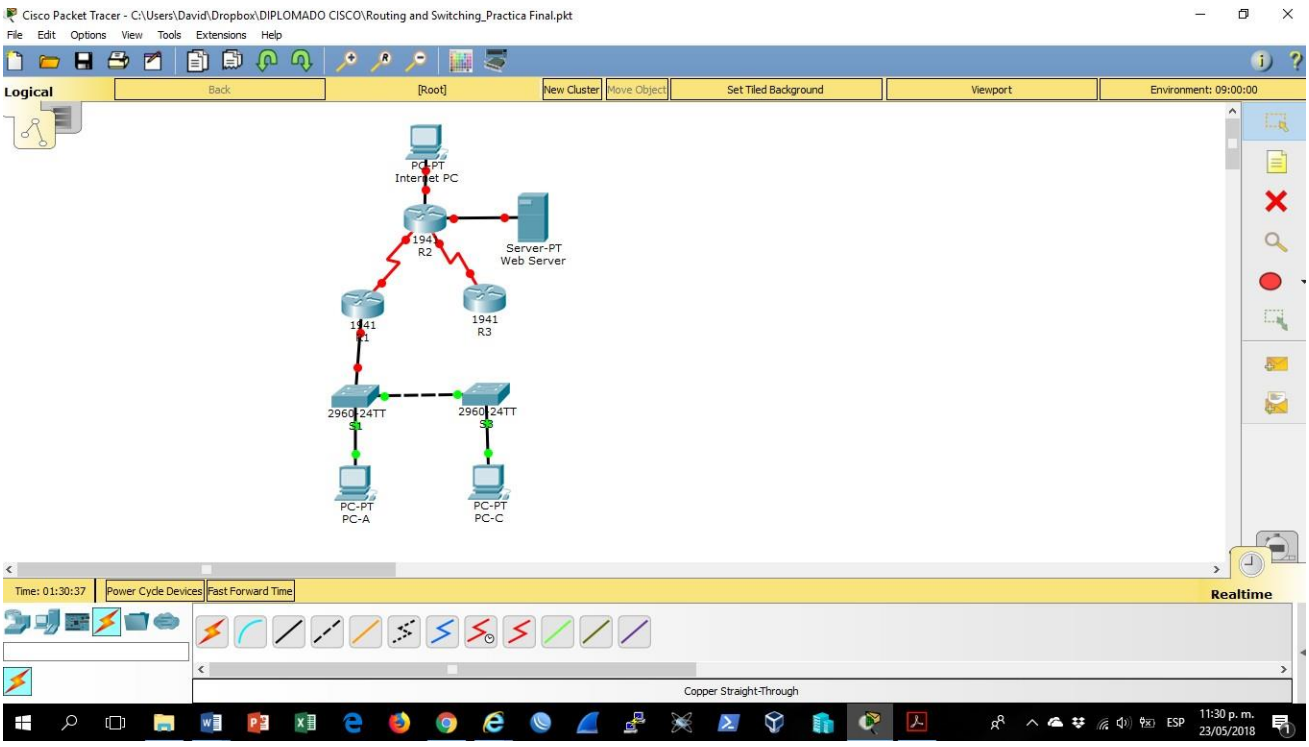
Topología de red

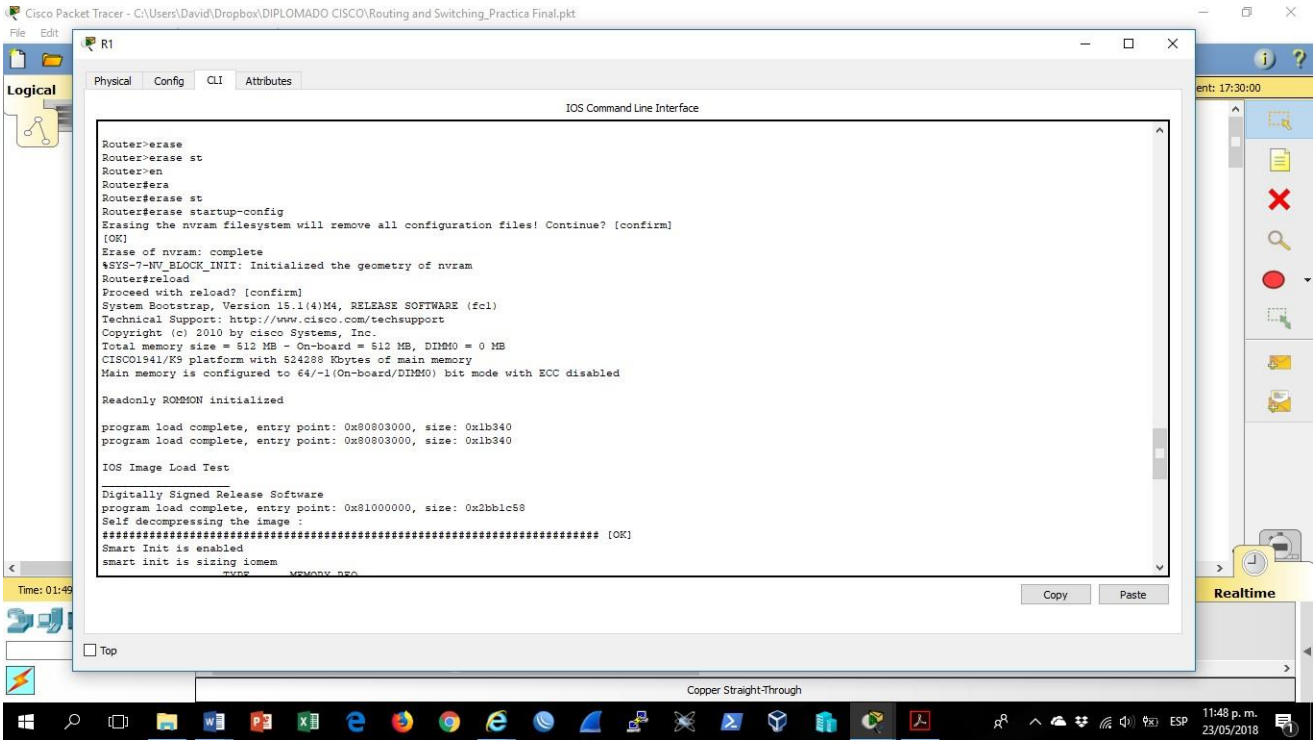


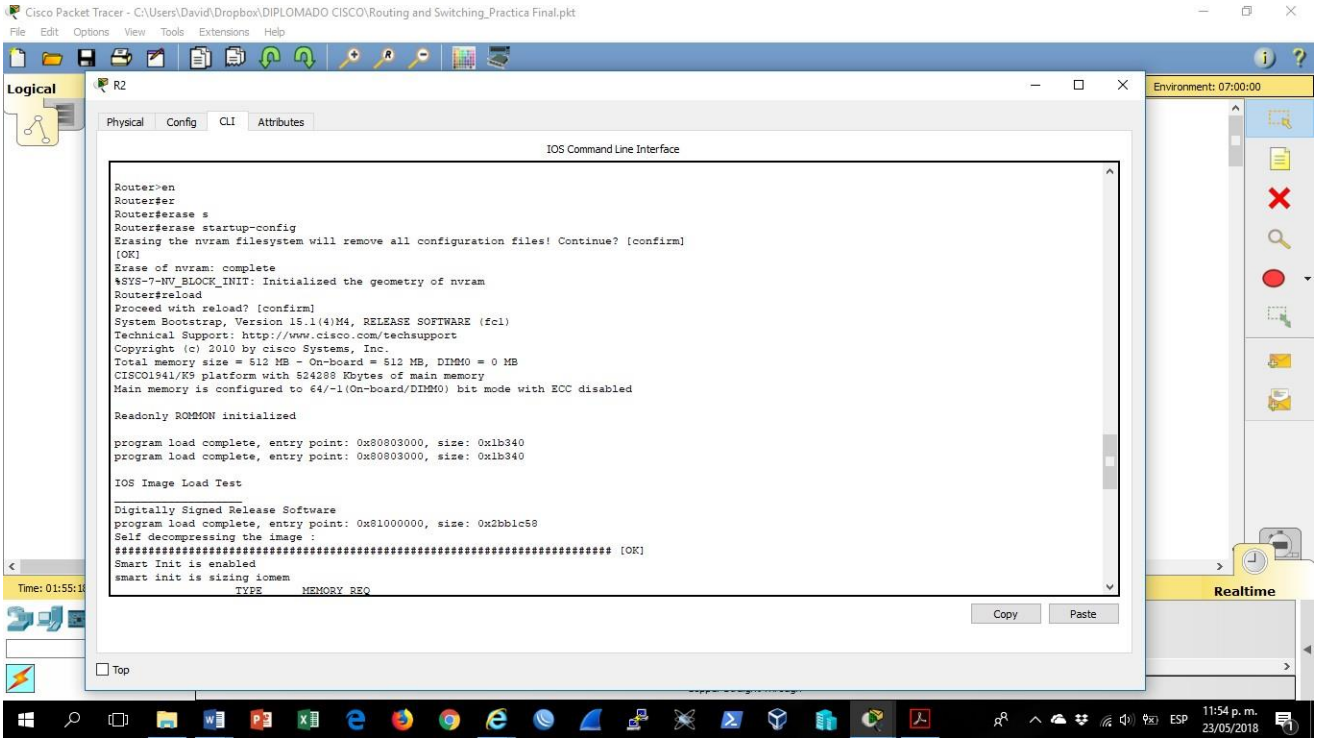
VLAN	Direccionamiento	Nombre
30	192.168.30.0/24	Administración
40	192.168.40.0/24	Mercadeo
200	192.168.200.0/24	Mantenimiento

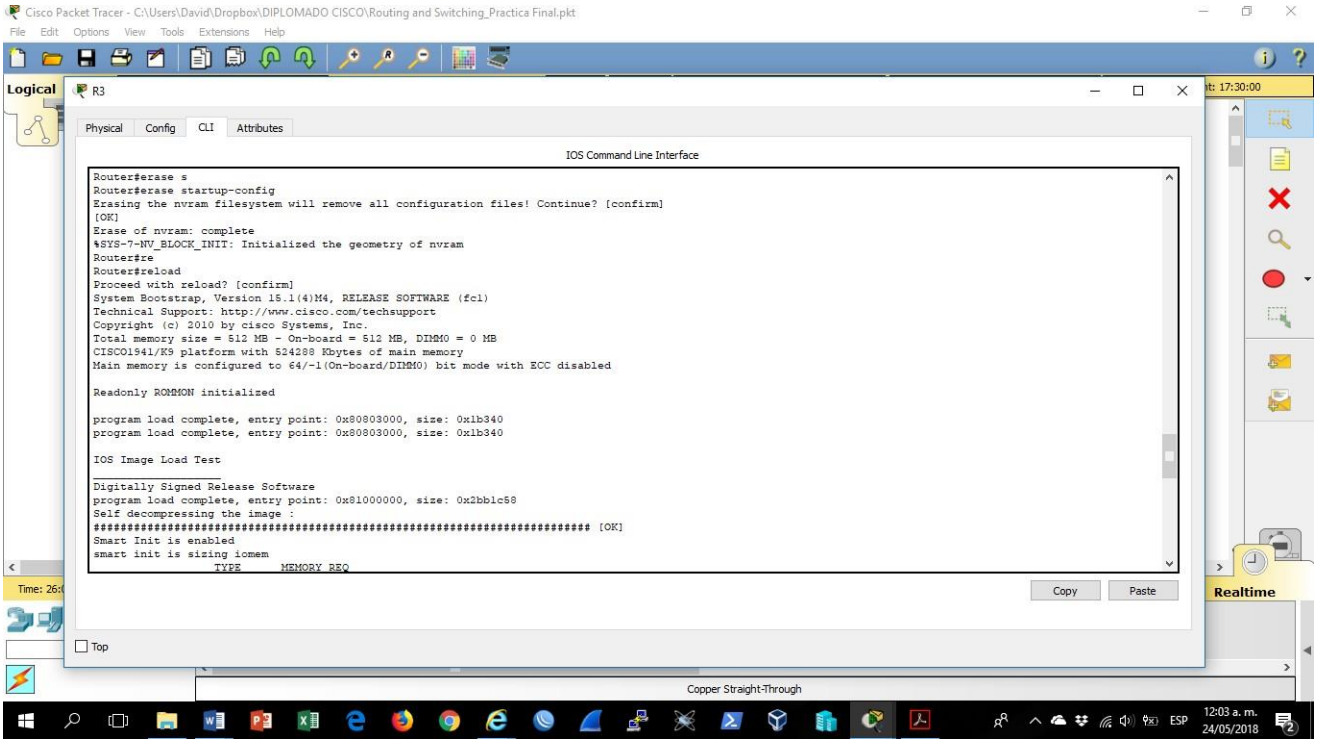
1. Configurar el direccionamiento IP acorde con la topología de red para cada uno de los dispositivos que forman parte del escenario

   Armamos la topología de red según el caso de estudio:

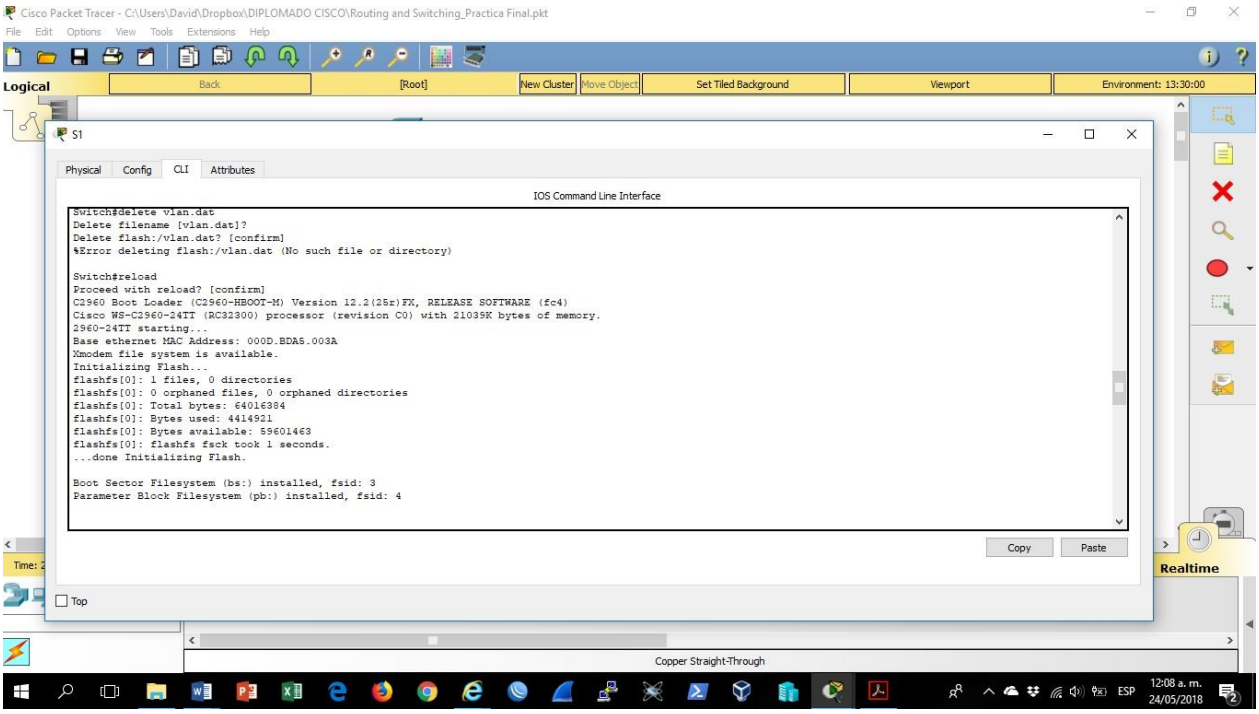


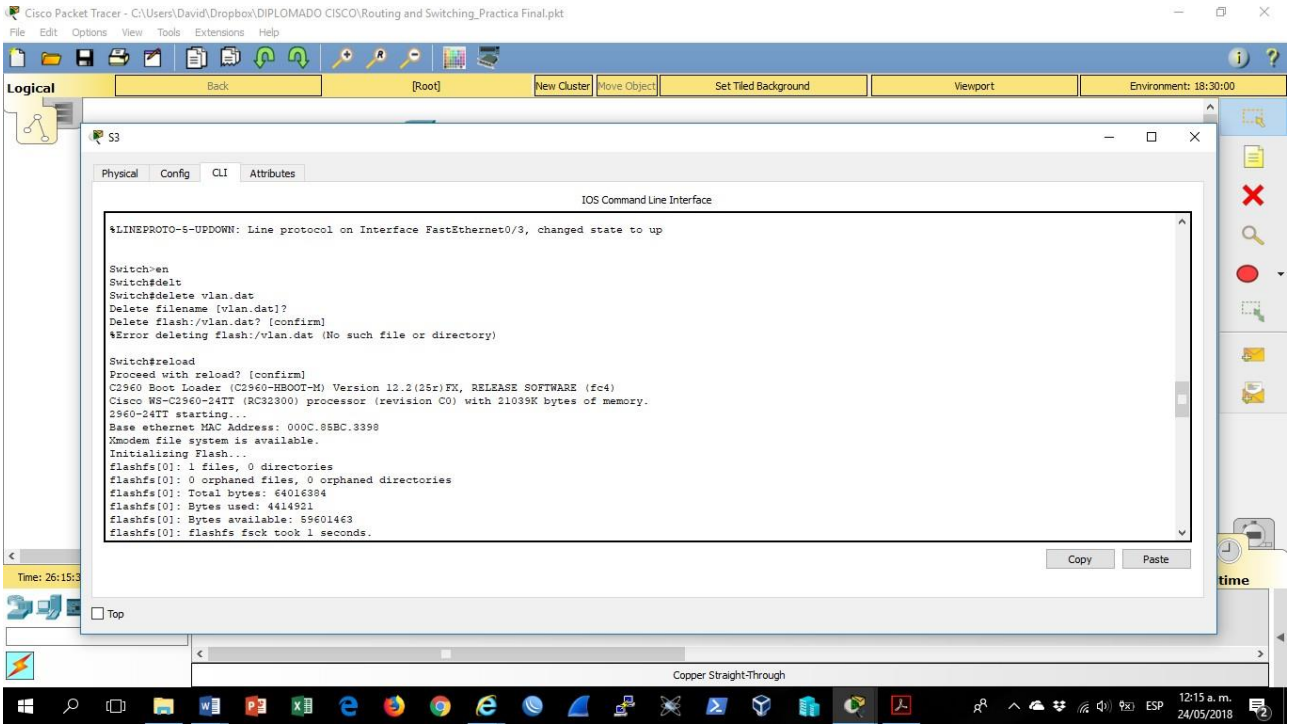




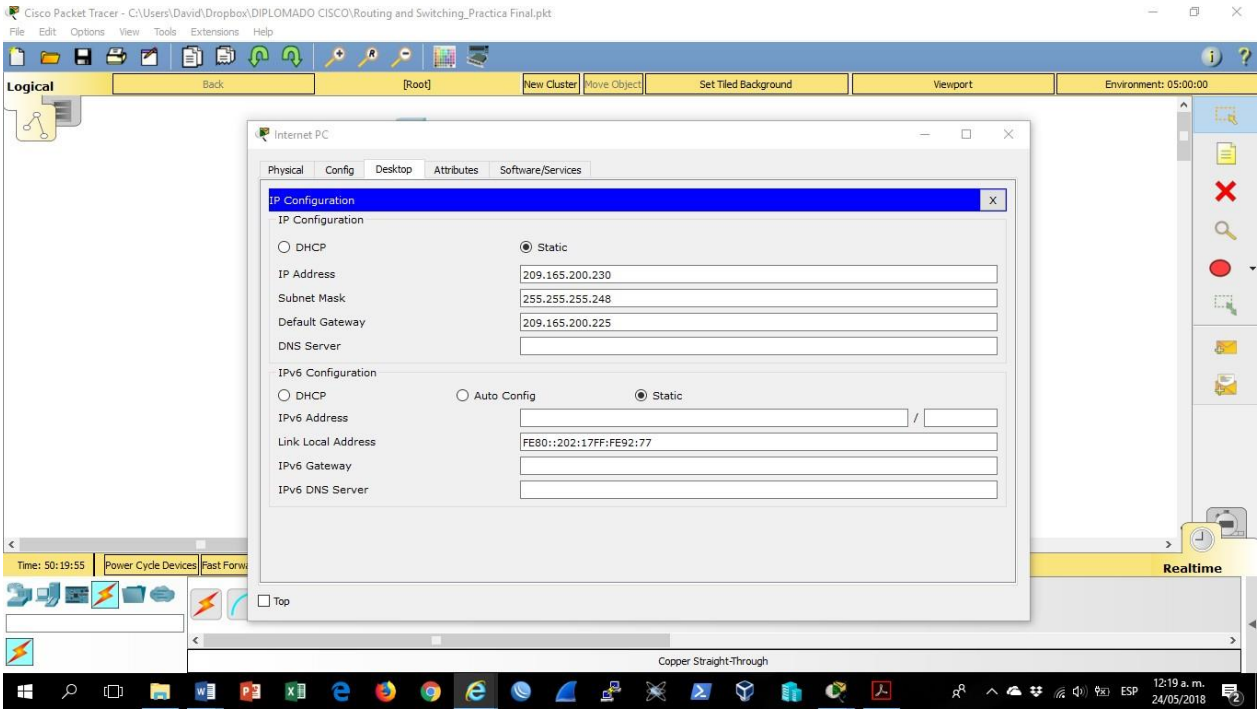


Borramos configuración inicial en todos los switches y quitamos la base de datos de las VLAN que traen por defecto:

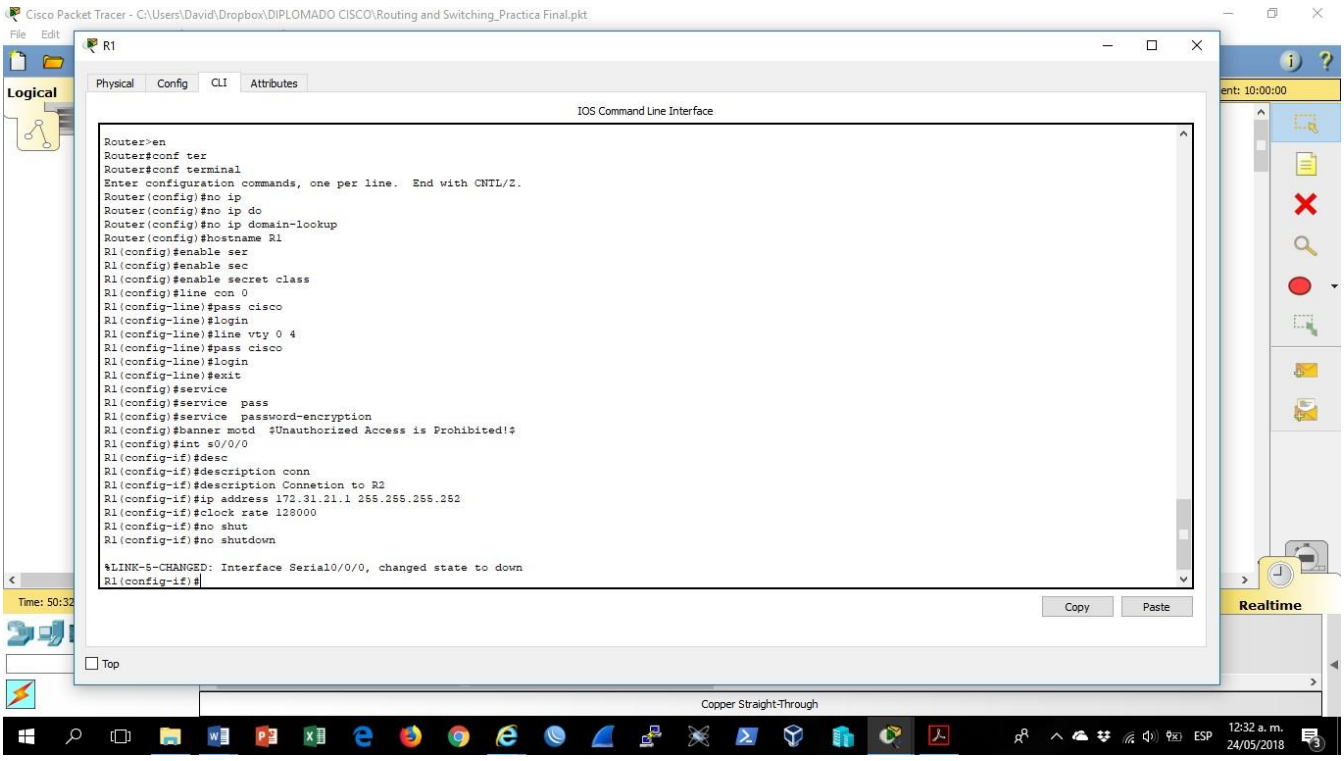


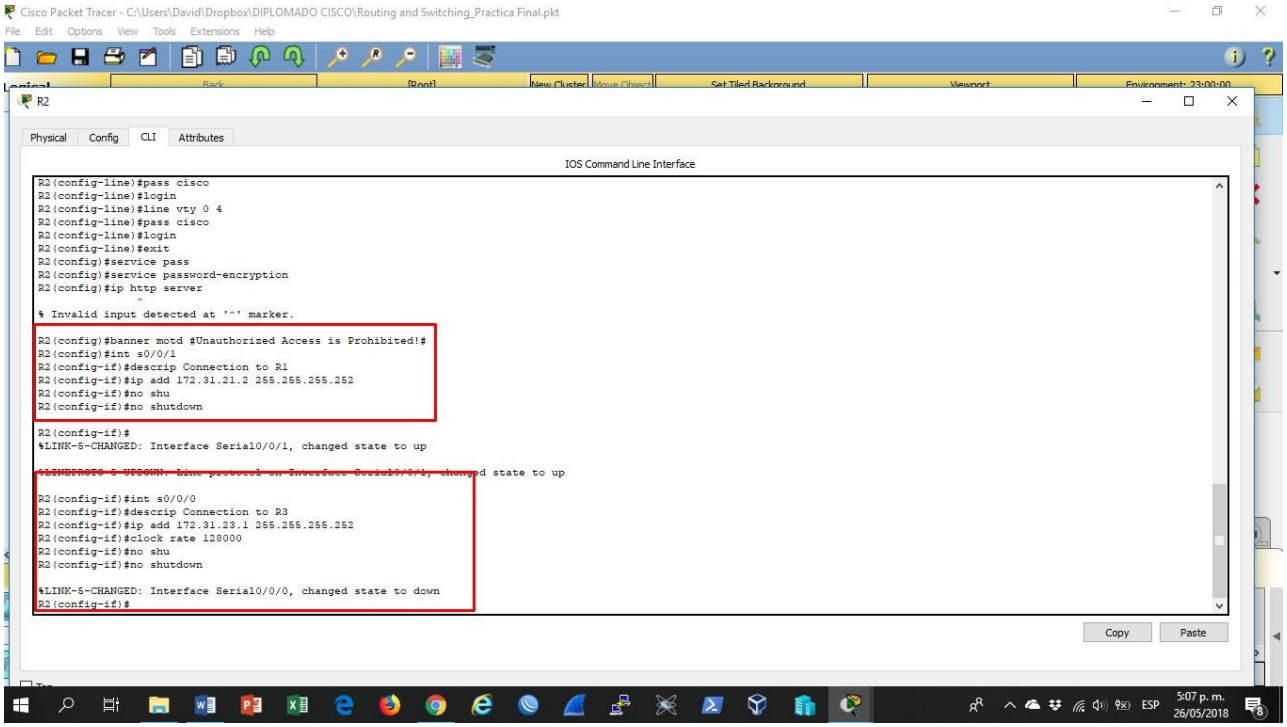


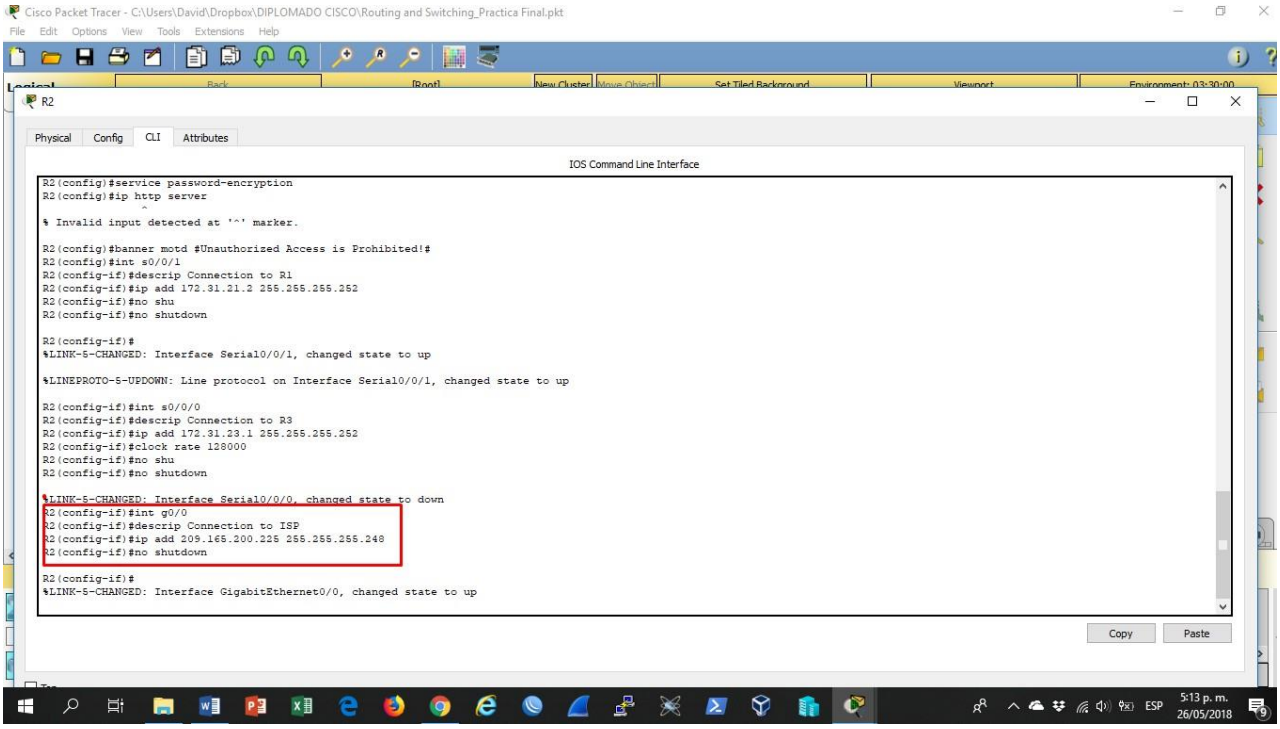
Configuramos direccionamiento IP en la NIC de la PC de Internet:

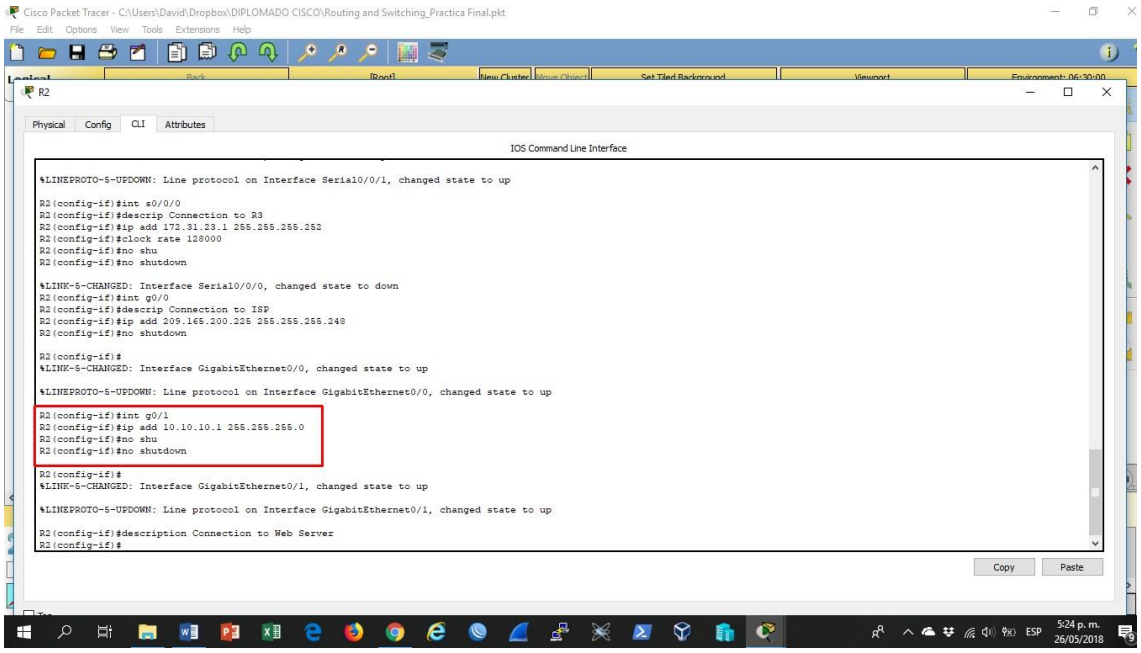


Configuración de R1,R2 y R3 de acuerdo a parametros iniciales, básicamente lo que se hace es: Desabilitar DNS lookup, nomenclatura del dispositivo, encriptar contraseñas, definir contraseñas de acceso a consola, asignar direccionamiento IP en capa 3, activar la interface:

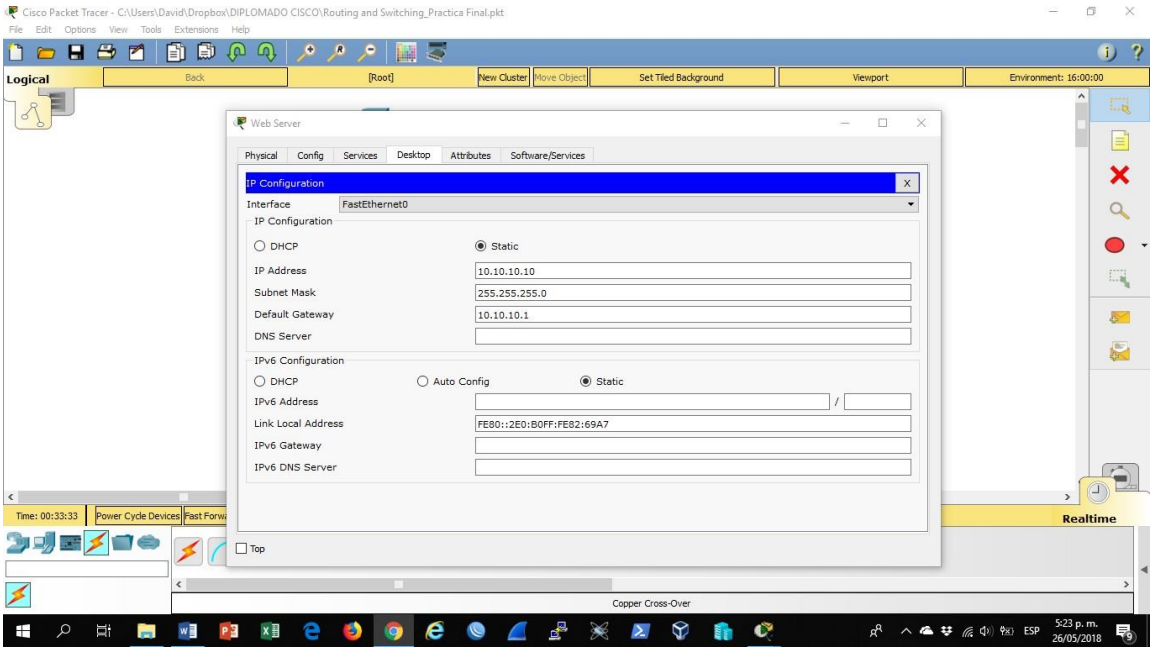


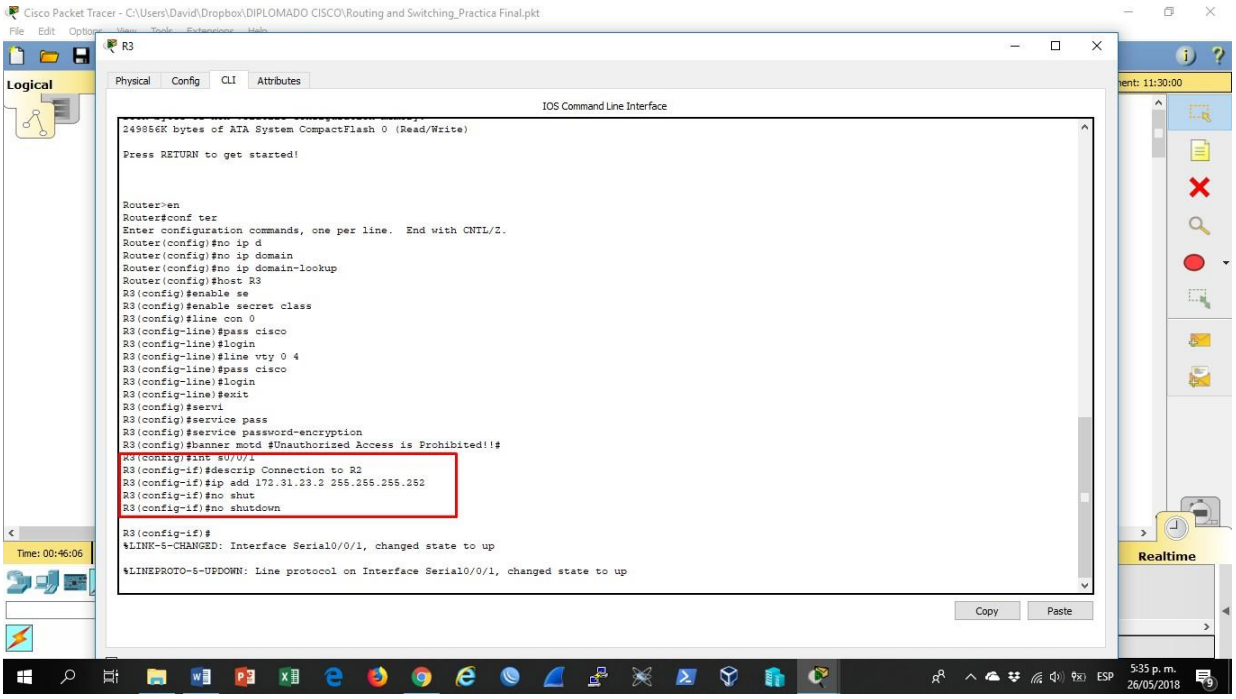

Cisco Packet Tracer - C:\Users\David\Dropbox\DIPLOMADO CISCO\Routing and Switching_Practica Final.pkt
File Edit Options View Tools Extensions Help
R2
Physical Config CLI Attributes
IOS Command Line Interface
R2(config-line)#pass cisco
R2(config-line)#login
R2(config-line)#line vty 0 4
R2(config-line)#pass cisco
R2(config-line)#login
R2(config-line)#exit
R2(config)#service pass
R2(config)#service password-encryption
R2(config)#ip http server
% Invalid input detected at '^' marker.
R2(config)#banner motd #Unauthorized Access is Prohibited!#
R2(config)#int s0/0/1
R2(config-if)#descrip Connection to R1
R2(config-if)#ip add 172.31.21.2 255.255.255.252
R2(config-if)#no shu
R2(config-if)#no shutdown
R2(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up
R2(config-if)#int s0/0/0
R2(config-if)#descrip Connection to R3
R2(config-if)#ip add 172.31.23.1 255.255.255.252
R2(config-if)#clock rate 128000
R2(config-if)#no shu
R2(config-if)#no shutdown
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
R2(config-if)#
Copy
Paste
ESP
5:07 p. m.
26/05/2018

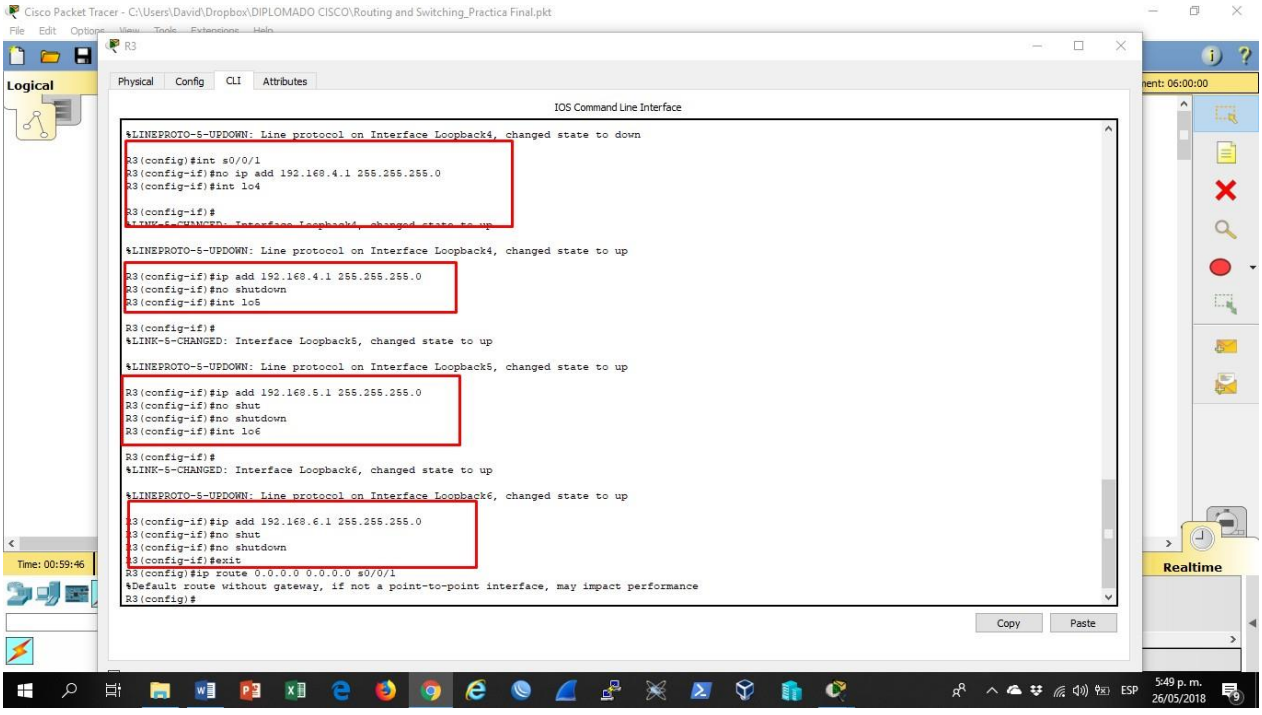

Cisco Packet Tracer - C:\Users\David\Dropbox\DIPLOMADO CISCO\Routing and Switching_Practica Final.pkt
File Edit Options View Tools Extensions Help
R2
Physical Config CLI Attributes
IOS Command Line Interface
R2(config)#service password-encryption
R2(config)#ip http server
% Invalid input detected at '^' marker.
R2(config)#banner motd #Unauthorized Access is Prohibited!#
R2(config)#int s0/0/1
R2(config-if)#descrip Connection to R1
R2(config-if)#ip add 172.31.21.2 255.255.255.252
R2(config-if)#no shu
R2(config-if)#no shutdown
R2(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up
R2(config-if)#int s0/0/0
R2(config-if)#descrip Connection to R3
R2(config-if)#ip add 172.31.23.1 255.255.255.252
R2(config-if)#clock rate 128000
R2(config-if)#no shu
R2(config-if)#no shutdown
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
R2(config-if)#int g0/0
R2(config-if)#descrip Connection to ISP
R2(config-if)#ip add 209.165.200.225 255.255.255.248
R2(config-if)#no shutdown
R2(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up
Copy
Paste
ESP
5:13 p. m.
26/05/2018



Configuración del Web Server:







2. Configurar el protocolo de enrutamiento OSPFv2 bajo los siguientes criterios:

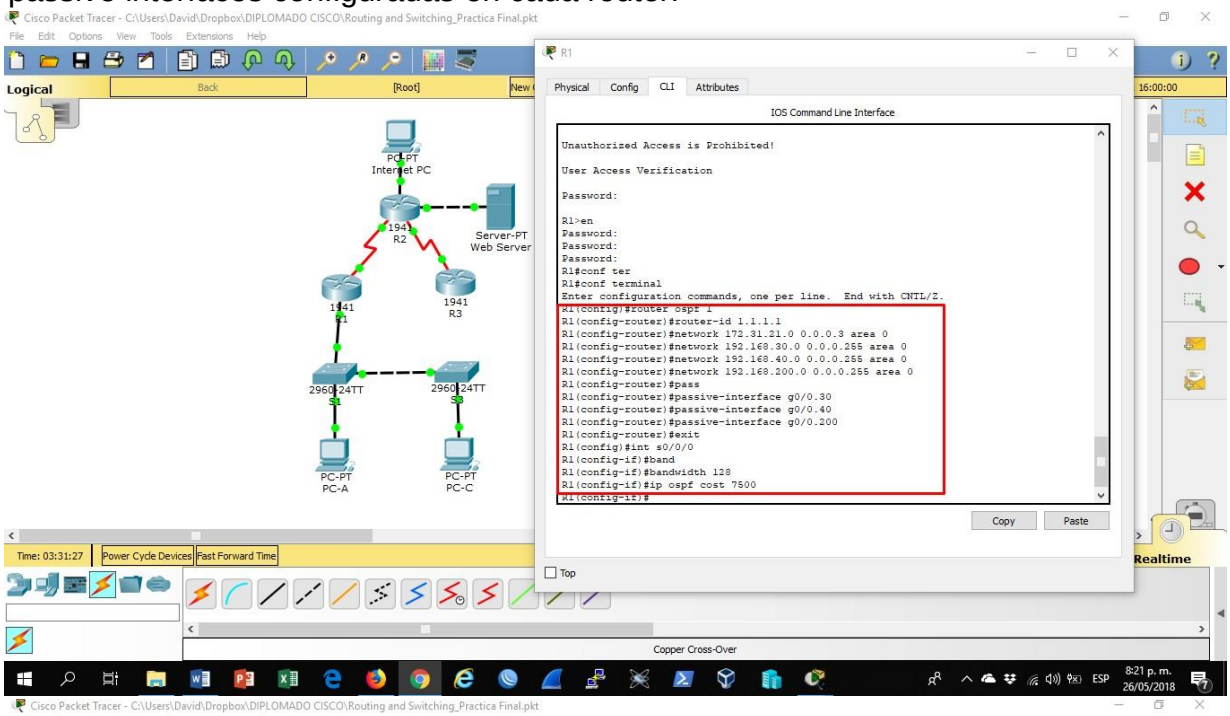
OSPFv2 area 0

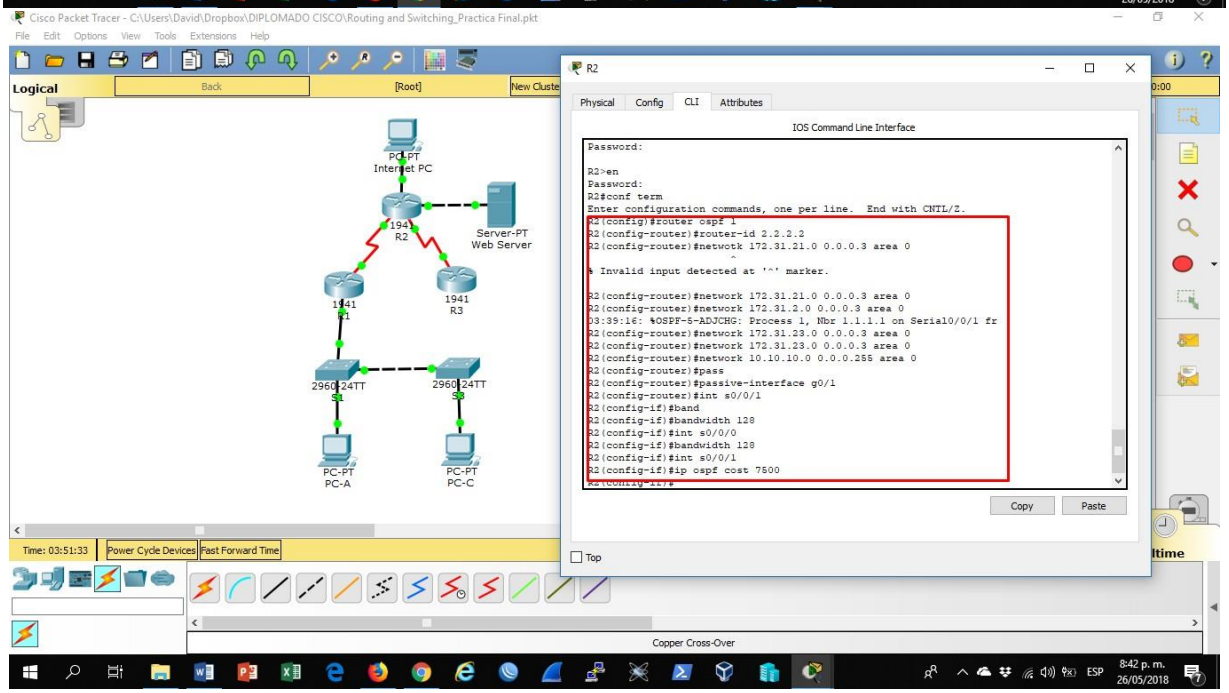
Configuration Item or Task	Specification
Router ID R1	1.1.1.1
Router ID R2	2.2.2.2
Router ID R3	3.3.3.3

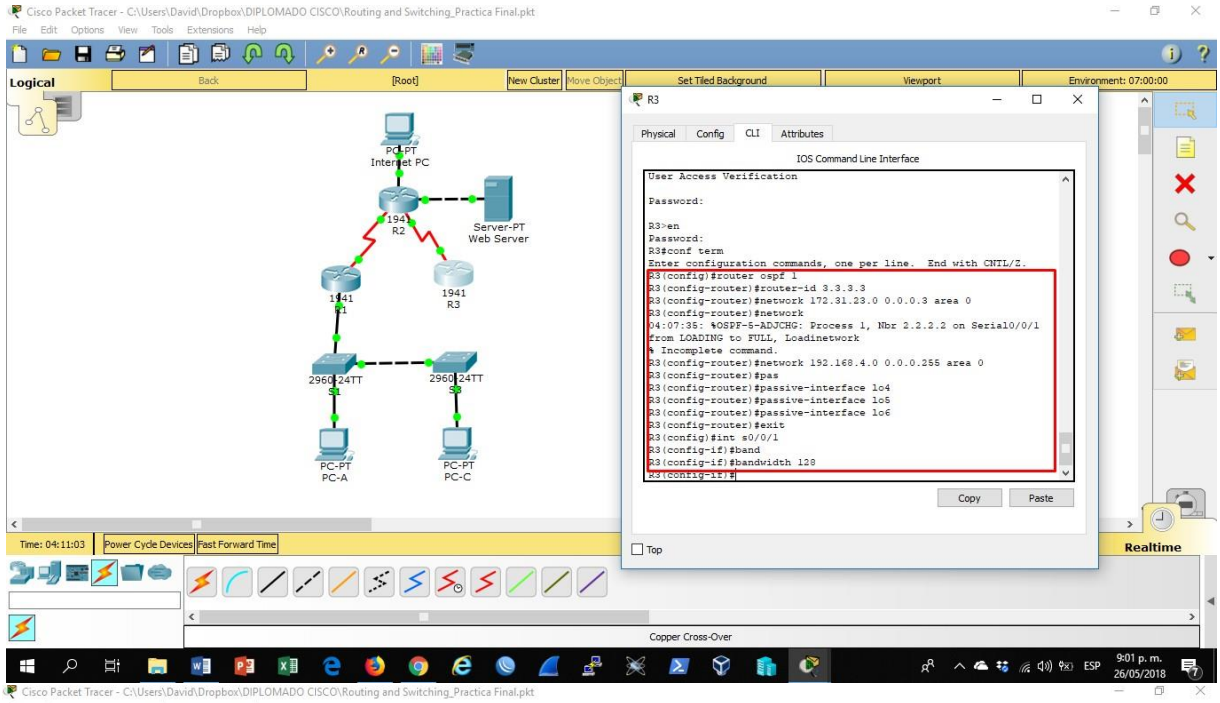
Configurar todas las interfaces LAN como pasivas	
Establecer el ancho de banda para enlaces seriales en	128 Kb/s
Ajustar el costo en la métrica de S0/0 a	7500

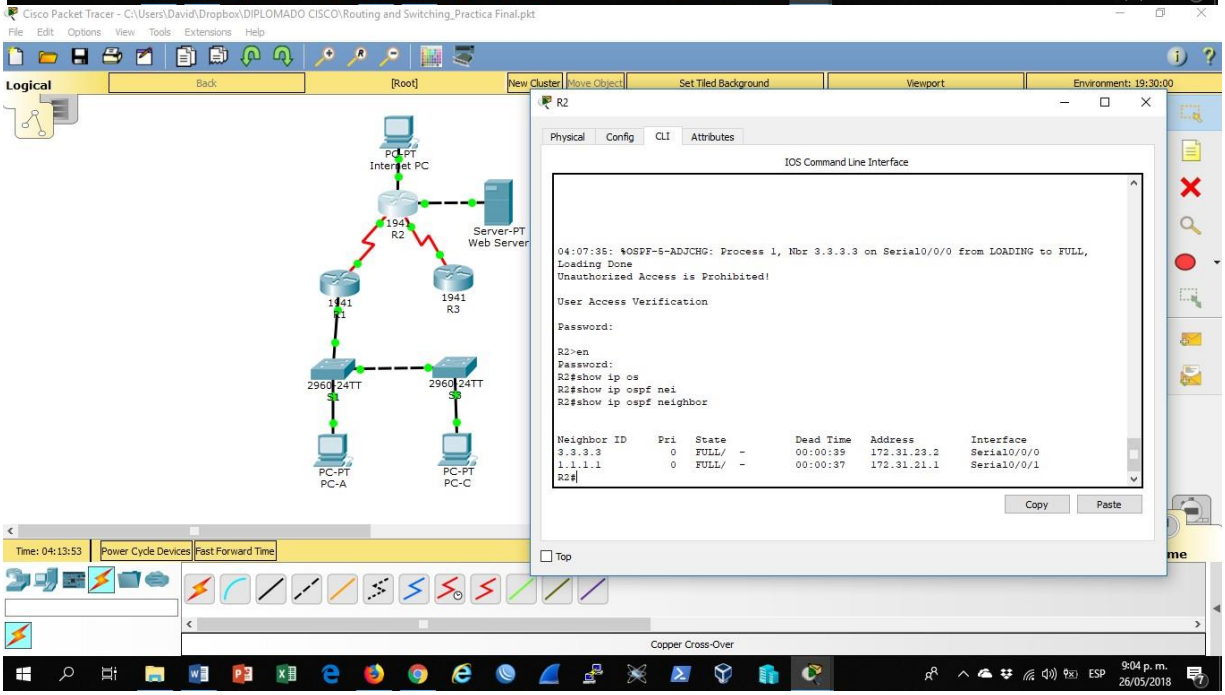
Verificar información de OSPF

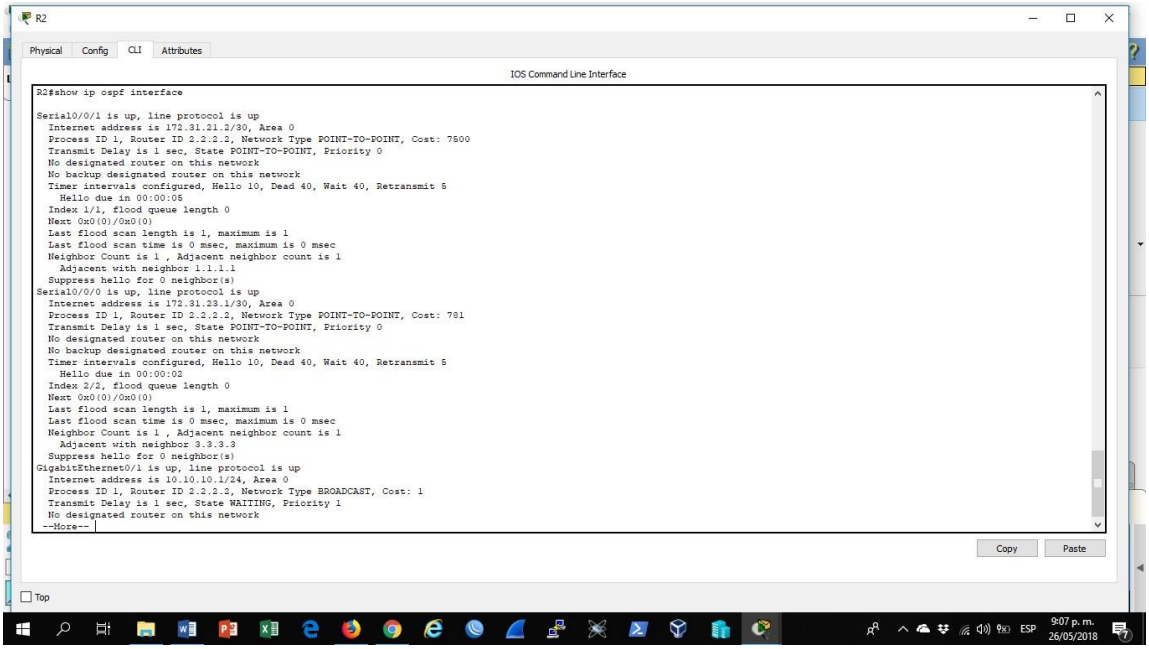
- Visualizar tablas de enrutamiento y routers conectados por OSPFv2
- Visualizar lista resumida de interfaces por OSPF en donde se ilustre el costo de cada interface
- Visualizar el OSPF Process ID, Router ID, Address summarizations, Routing Networks, and passive interfaces configuradas en cada router.

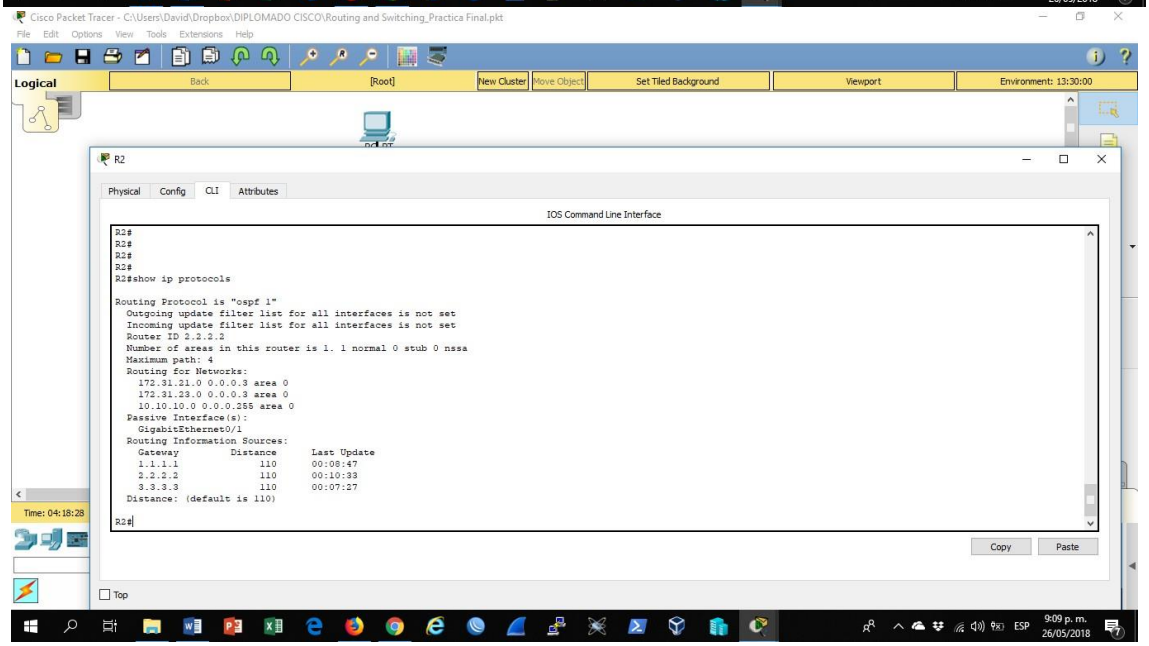


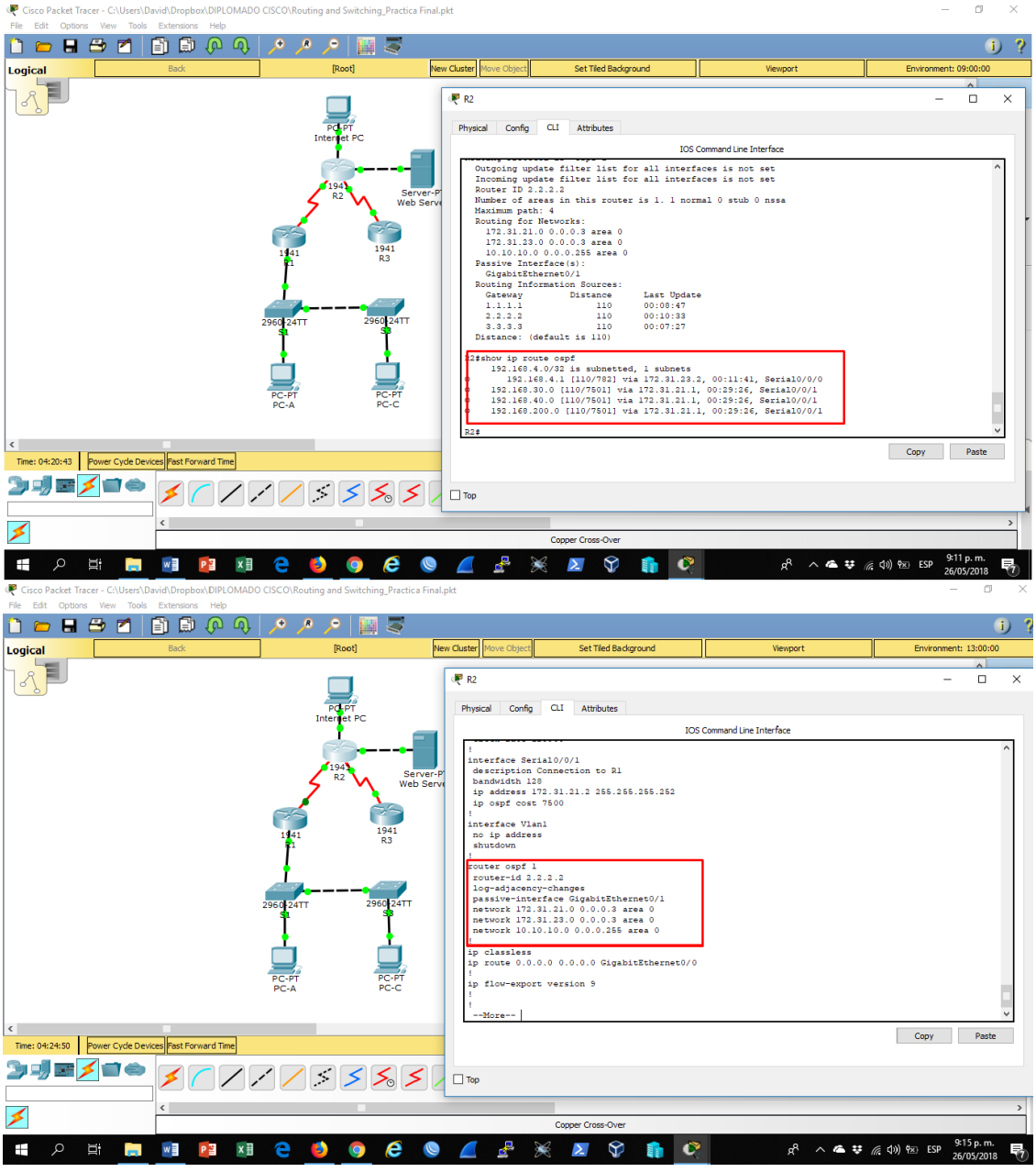



Cisco Packet Tracer - C:\Users\David\Dropbox\DIPLOMADO CISCO\Routing and Switching_Practica Final.pkt
File Edit Options View Tools Extensions Help
Logical
Back
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Environment: 07:00:00
PC-PT Internet PC
1941 R2
Server-PT Web Server
1941 R1
1941 R3
2960-24TT S1
2960-24TT S3
PC-PT PC-A
PC-PT PC-C
R3
Physical
Config
CLI
Attributes
IOS Command Line Interface
User Access Verification
Password:
R3>en
Password:
R3#conf term
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#router ospf 1
R3(config-router)#router-id 3.3.3.3
R3(config-router)#network 172.31.23.0 0.0.0.3 area 0
R3(config-router)#network
04:07:35: %OSPF-5-ADJCHG: Process 1, Nbr 2.2.2.2 on Serial0/0/1
from LOADING to FULL, Loadinetwork
% Incomplete command.
R3(config-router)#network 192.168.4.0 0.0.0.255 area 0
R3(config-router)#pas
R3(config-router)#passive-interface lo4
R3(config-router)#passive-interface lo5
R3(config-router)#passive-interface lo6
R3(config-router)#exit
R3(config)#int s0/0/1
R3(config-if)#band
R3(config-if)#bandwidth 128
R3(config-if)#
Copy
Paste
Top
Time: 04:11:03
Power Cycle Devices
Fast Forward Time
Realtime
Copper Cross-Over
ESP
9:01 p. m.
26/05/2018

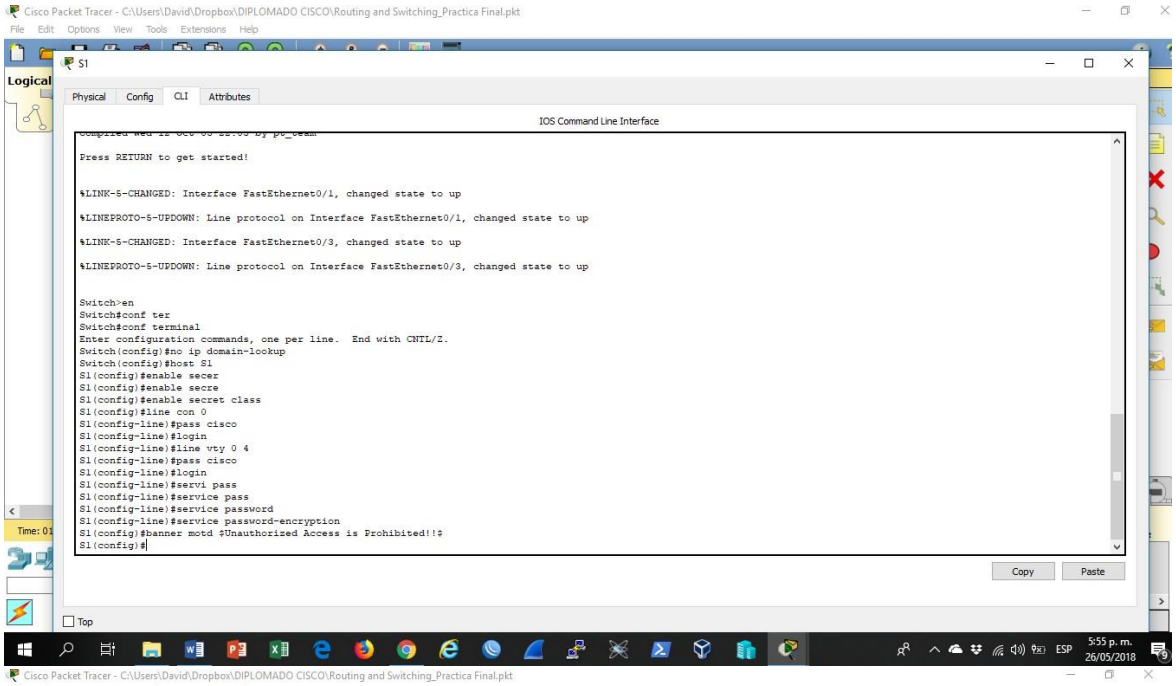

Cisco Packet Tracer - C:\Users\David\Dropbox\DIPLOMADO CISCO\Routing and Switching_Practica Final.pkt
File Edit Options View Tools Extensions Help
Logical
Back
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Environment: 19:30:00
PC-PT Internet PC
1941 R2
Server-PT Web Server
1941 R1
1941 R3
2960-24TT S1
2960-24TT S3
PC-PT PC-A
PC-PT PC-C
R2
Physical
Config
CLI
Attributes
IOS Command Line Interface
04:07:35: %OSPF-5-ADJCHG: Process 1, Nbr 3.3.3.3 on Serial0/0/0 from LOADING to FULL,
Loading Done
Unauthorized Access is Prohibited!
User Access Verification
Password:
R2>en
Password:
R2#show ip os
R2#show ip ospf nei
R2#show ip ospf neighbor
Neighbor ID Pri State Dead Time Address Interface
3.3.3.3 0 FULL/ - 00:00:39 172.31.23.2 Serial0/0/0
1.1.1.1 0 FULL/ - 00:00:37 172.31.21.1 Serial0/0/1
R2#
Copy
Paste
Top
Time: 04:13:53
Power Cycle Devices
Fast Forward Time
Copper Cross-Over
ESP
9:04 p. m.
26/05/2018

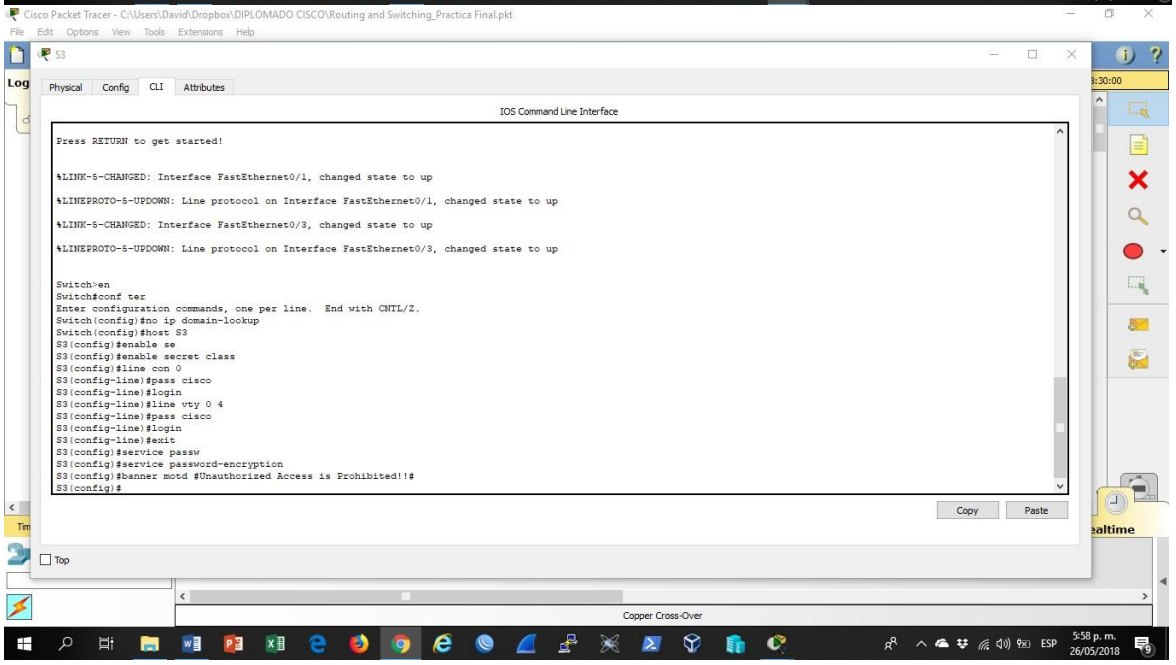

R2
Physical
Config
CLI
Attributes
IOS Command Line Interface
R2#show ip ospf interface
Serial0/0/1 is up, line protocol is up
Internet address is 172.31.21.2/30, Area 0
Process ID 1, Router ID 2.2.2.2, Network Type POINT-TO-POINT, Cost: 7500
Transmit Delay is 1 sec, State POINT-TO-POINT, Priority 0
No designated router on this network
No backup designated router on this network
Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
Hello due in 00:00:05
Index 1/1, flood queue length 0
Next 0x0(0)/0x0(0)
Last flood scan length is 1, maximum is 1
Last flood scan time is 0 msec, maximum is 0 msec
Neighbor Count is 1 , Adjacent neighbor count is 1
Adjacent with neighbor 1.1.1.1
Suppress hello for 0 neighbor(s)
Serial0/0/0 is up, line protocol is up
Internet address is 172.31.23.1/30, Area 0
Process ID 1, Router ID 2.2.2.2, Network Type POINT-TO-POINT, Cost: 781
Transmit Delay is 1 sec, State POINT-TO-POINT, Priority 0
No designated router on this network
No backup designated router on this network
Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
Hello due in 00:00:02
Index 2/2, flood queue length 0
Next 0x0(0)/0x0(0)
Last flood scan length is 1, maximum is 1
Last flood scan time is 0 msec, maximum is 0 msec
Neighbor Count is 1 , Adjacent neighbor count is 1
Adjacent with neighbor 3.3.3.3
Suppress hello for 0 neighbor(s)
GigabitEthernet0/1 is up, line protocol is up
Internet address is 10.10.10.1/24, Area 0
Process ID 1, Router ID 2.2.2.2, Network Type BROADCAST, Cost: 1
Transmit Delay is 1 sec, State WAITING, Priority 1
No designated router on this network
--More--
Copy
Paste
Top
ESP
9:07 p. m.
26/05/2018

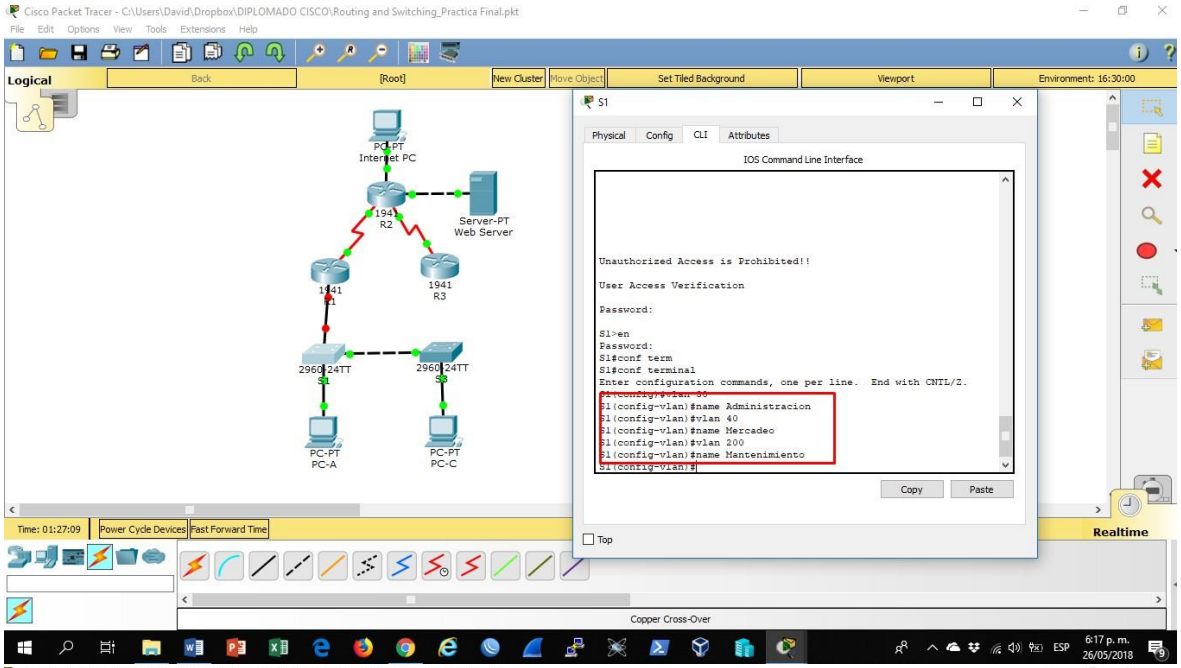

Cisco Packet Tracer - C:\Users\David\Dropbox\DIPLOMADO CISCO\Routing and Switching_Practica Final.pkt
File Edit Options View Tools Extensions Help
Logical
Back
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Environment: 13:30:00
R2
Physical
Config
CLI
Attributes
IOS Command Line Interface
R2#
R2#
R2#
R2#
R2#show ip protocols
Routing Protocol is "ospf 1"
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Router ID 2.2.2.2
Number of areas in this router is 1. 1 normal 0 stub 0 nssa
Maximum path: 4
Routing for Networks:
172.31.21.0 0.0.0.3 area 0
172.31.23.0 0.0.0.3 area 0
10.10.10.0 0.0.0.255 area 0
Passive Interface(s):
GigabitEthernet0/1
Routing Information Sources:
Gateway Distance Last Update
1.1.1.1 110 00:08:47
2.2.2.2 110 00:10:33
3.3.3.3 110 00:07:27
Distance: (default is 110)
R2#
Copy
Paste
Top
Time: 04:18:28
ESP
9:09 p. m.
26/05/2018

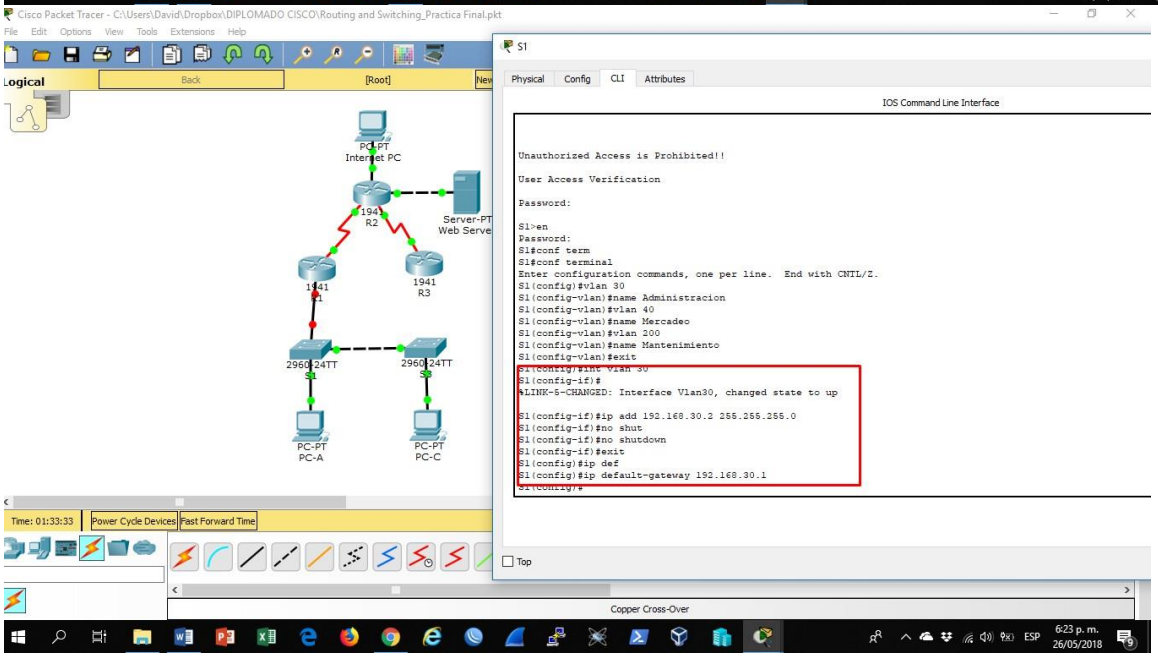


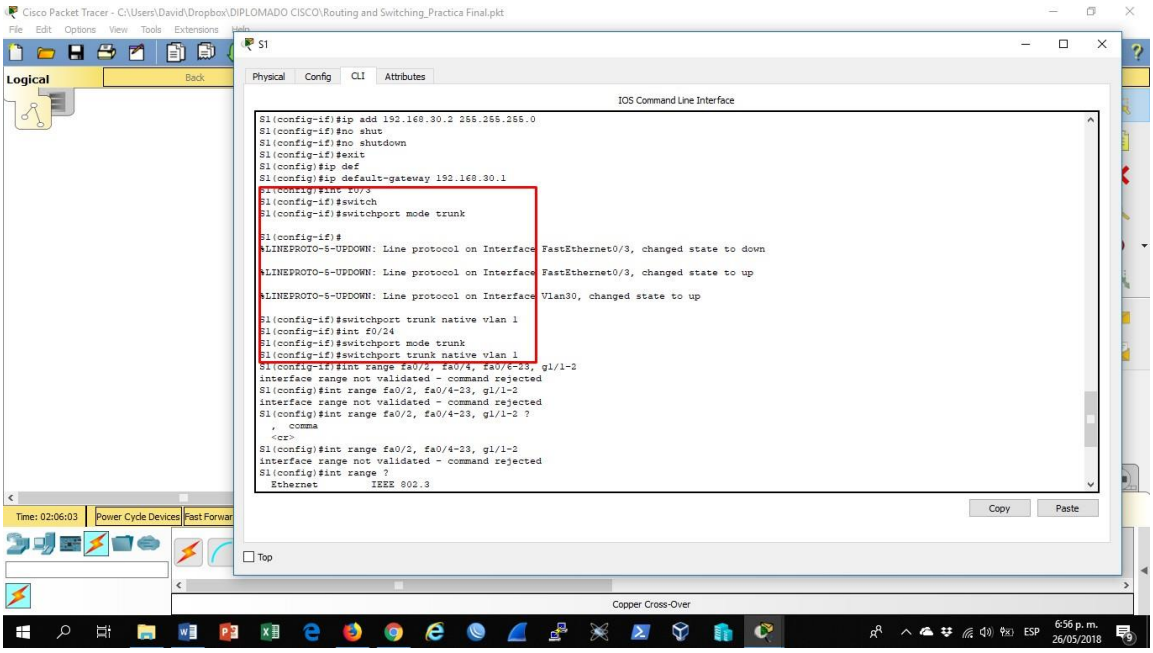
3. Configurar VLANs, Puertos troncales, puertos de acceso, encapsulamiento, Inter-VLAN Routing y Seguridad en los Switches acorde a la topología de red establecida.

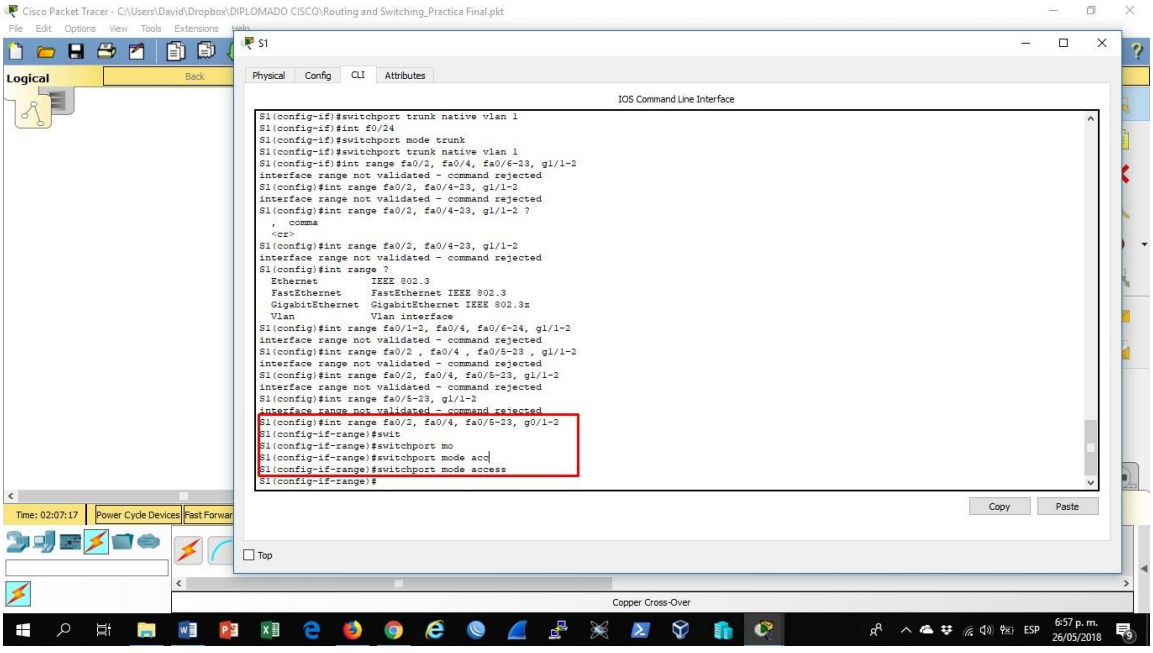

Cisco Packet Tracer - C:\Users\David\Dropbox\DIPLOMADO CISCO\Routing and Switching_Practica Final.pkt
File Edit Options View Tools Extensions Help
S1
Physical Config CLI Attributes
IOS Command Line Interface
Press RETURN to get started!
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up
Switch>en
Switch#conf ter
Switch#conf terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#no ip domain-lookup
Switch(config)#host S1
S1(config)#enable secer
S1(config)#enable secre
S1(config)#enable secret class
S1(config)#line con 0
S1(config-line)#pass cisco
S1(config-line)#login
S1(config-line)#line vty 0 4
S1(config-line)#pass cisco
S1(config-line)#login
S1(config-line)#servi pass
S1(config-line)#service pass
S1(config-line)#service password
S1(config-line)#service password-encryption
S1(config)#banner motd $Unauthorized Access is Prohibited!!$
S1(config)#
Copy
Paste
Top
ESP
5:55 p. m.
26/05/2018

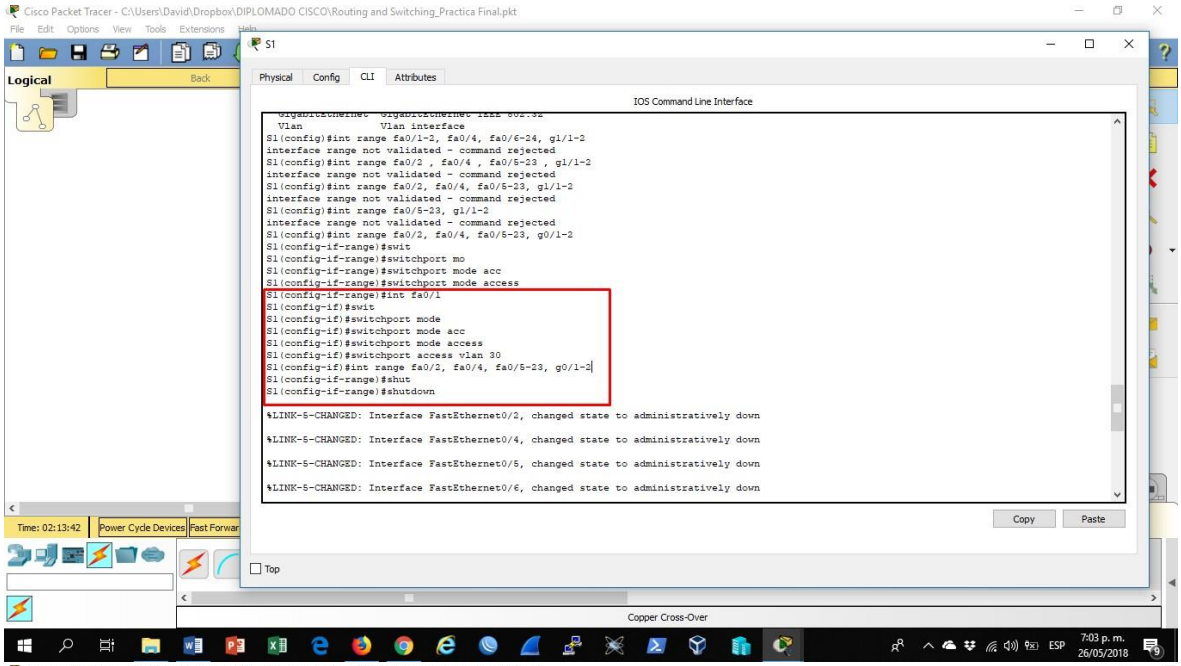

Cisco Packet Tracer - C:\Users\David\Dropbox\DIPLOMADO CISCO\Routing and Switching_Practica Final.pkt
File Edit Options View Tools Extensions Help
S3
Physical Config CLI Attributes
IOS Command Line Interface
Press RETURN to get started!
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up
Switch>en
Switch#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#no ip domain-lookup
Switch(config)#host S3
S3(config)#enable se
S3(config)#enable secret class
S3(config)#line con 0
S3(config-line)#pass cisco
S3(config-line)#login
S3(config-line)#line vty 0 4
S3(config-line)#pass cisco
S3(config-line)#login
S3(config-line)#exit
S3(config)#service passw
S3(config)#service password-encryption
S3(config)#banner motd #Unauthorized Access is Prohibited!!#
S3(config)#
Copy
Paste
Top
Copper Cross-Over
ESP
5:58 p. m.
26/05/2018

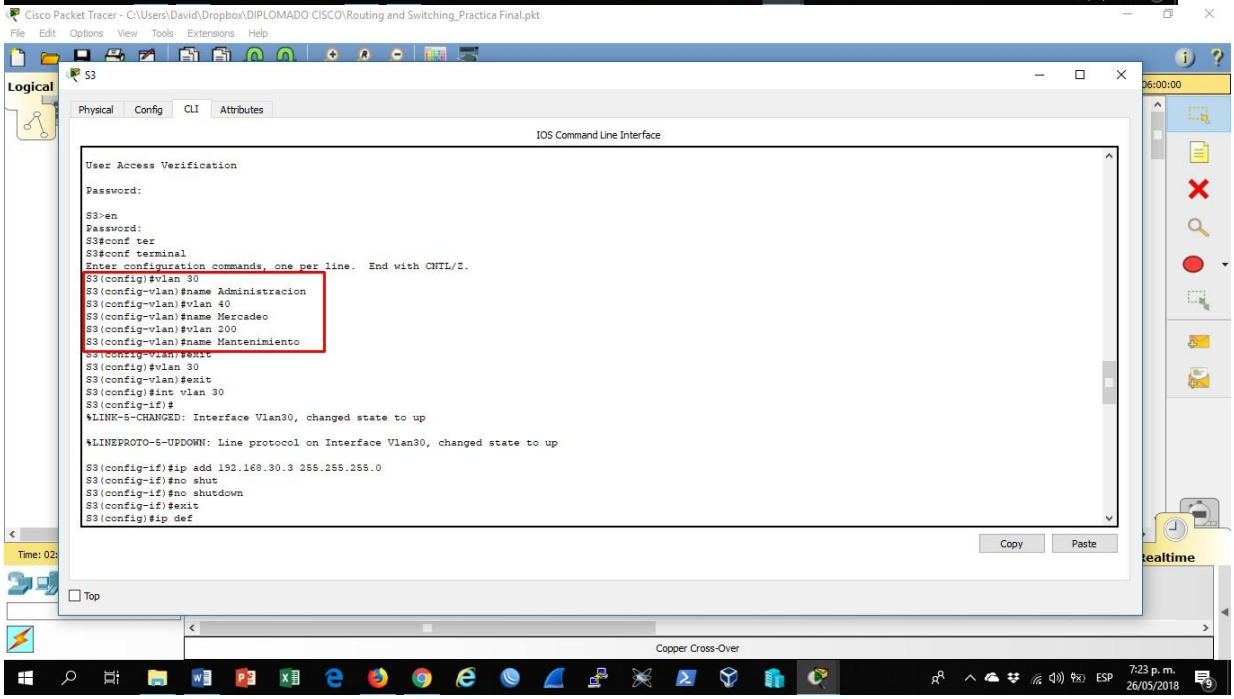

Cisco Packet Tracer - C:\Users\David\Dropbox\DIPLOMADO CISCO\Routing and Switching_Practica Final.pkt
File Edit Options View Tools Extensions Help
Logical
Back
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Environment: 16:30:00
PC-PT Internet PC
1941 R2
Server-PT Web Server
1941 R1
1941 R3
2960-24TT S1
2960-24TT S3
PC-PT PC-A
PC-PT PC-C
Time: 01:27:09
Power Cycle Devices
Fast Forward Time
Realtime
Copper Cross-Over
S1
Physical
Config
CLI
Attributes
IOS Command Line Interface
Unauthorized Access is Prohibited!!
User Access Verification
Password:
S1>en
Password:
S1#conf term
S1#conf terminal
Enter configuration commands, one per line. End with CNTL/Z.
S1(config-vlan)#name Administracion
S1(config-vlan)#vlan 40
S1(config-vlan)#name Mercadeo
S1(config-vlan)#vlan 200
S1(config-vlan)#name Mantenimiento
S1(config-vlan)#
Copy
Paste
Top
ESP
6:17 p. m.
26/05/2018

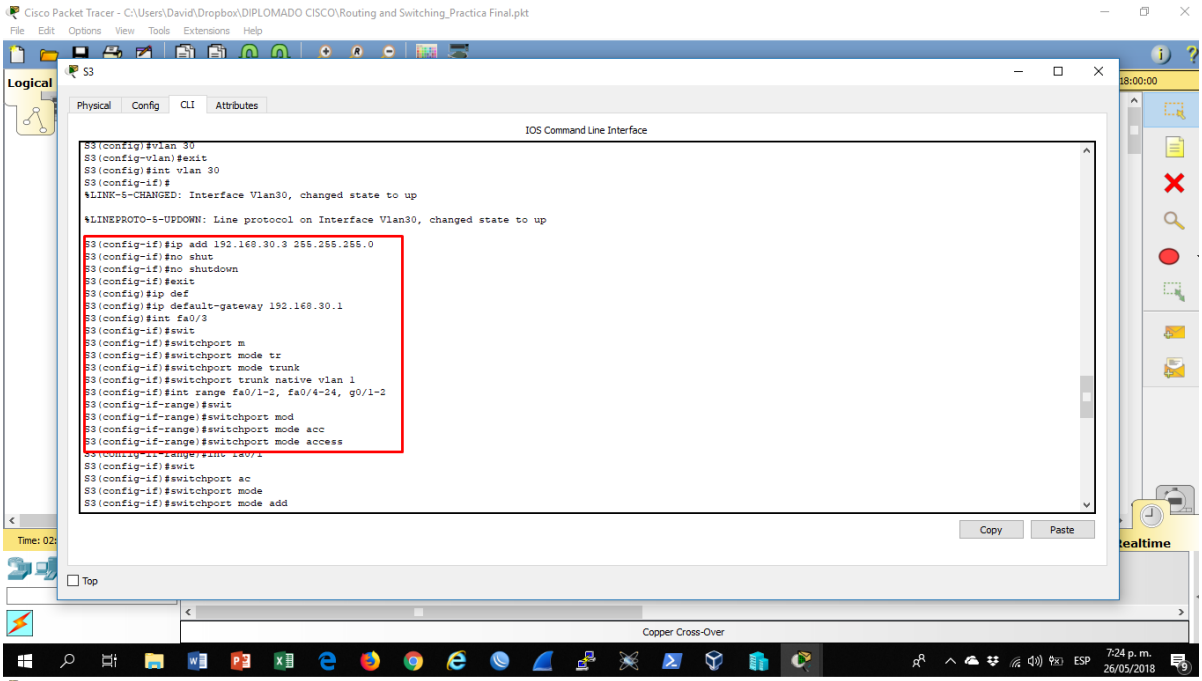

Cisco Packet Tracer - C:\Users\David\Dropbox\DIPLOMADO CISCO\Routing and Switching_Practica Final.pkt
File Edit Options View Tools Extensions Help
Logical
Back
[Root]
PC-PT Internet PC
1941 R2
Server-PT Web Serve
1941 R1
1941 R3
2960-24TT S1
2960-24TT S3
PC-PT PC-A
PC-PT PC-C
Time: 01:33:33
Power Cycle Devices
Fast Forward Time
Copper Cross-Over
S1
Physical
Config
CLI
Attributes
IOS Command Line Interface
Unauthorized Access is Prohibited!!
User Access Verification
Password:
S1>en
Password:
S1#conf term
S1#conf terminal
Enter configuration commands, one per line. End with CNTL/Z.
S1(config)#vlan 30
S1(config-vlan)#name Administracion
S1(config-vlan)#vlan 40
S1(config-vlan)#name Mercadeo
S1(config-vlan)#vlan 200
S1(config-vlan)#name Mantenimiento
S1(config-vlan)#exit
S1(config)#int vlan 30
S1(config-if)#
%LINK-5-CHANGED: Interface Vlan30, changed state to up
S1(config-if)#ip add 192.168.30.2 255.255.255.0
S1(config-if)#no shut
S1(config-if)#no shutdown
S1(config-if)#exit
S1(config)#ip def
S1(config)#ip default-gateway 192.168.30.1
S1(config)#
Top
ESP
6:23 p. m.
26/05/2018

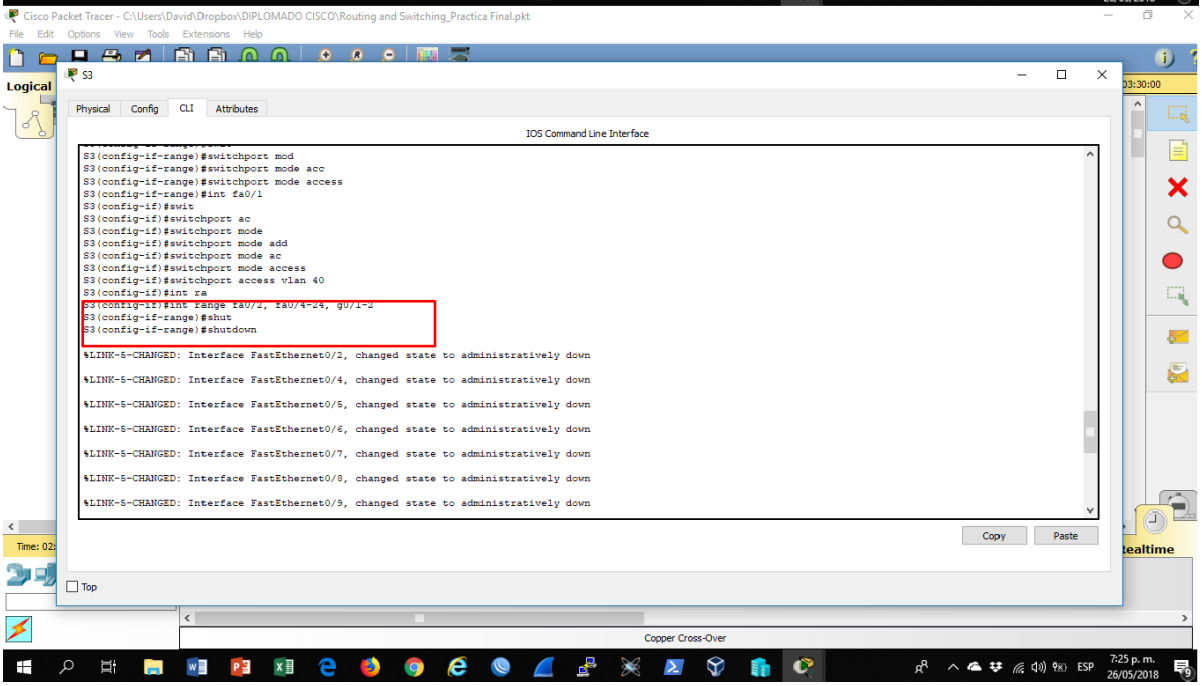

Cisco Packet Tracer - C:\Users\David\Dropbox\DIPLOMADO CISCO\Routing and Switching_Practica Final.pkt
S1
Physical
Config
CLI
Attributes
IOS Command Line Interface
S1(config-if)#ip add 192.168.30.2 255.255.255.0
S1(config-if)#no shut
S1(config-if)#no shutdown
S1(config-if)#exit
S1(config)#ip def
S1(config)#ip default-gateway 192.168.30.1
S1(config)#int f0/3
S1(config-if)#switch
S1(config-if)#switchport mode trunk
S1(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan30, changed state to up
S1(config-if)#switchport trunk native vlan 1
S1(config-if)#int f0/24
S1(config-if)#switchport mode trunk
S1(config-if)#switchport trunk native vlan 1
S1(config-if)#int range fa0/2, fa0/4, fa0/6-23, gl/1-2
interface range not validated - command rejected
S1(config)#int range fa0/2, fa0/4-23, gl/1-2
interface range not validated - command rejected
S1(config)#int range fa0/2, fa0/4-23, gl/1-2 ?
, comma
<cr>
S1(config)#int range fa0/2, fa0/4-23, gl/1-2
interface range not validated - command rejected
S1(config)#int range ?
Ethernet IEEE 802.3
Copy
Paste
Top
Logical
Back
Time: 02:06:03
Power Cycle Devices
Copper Cross-Over
ESP
6:56 p. m.
26/05/2018

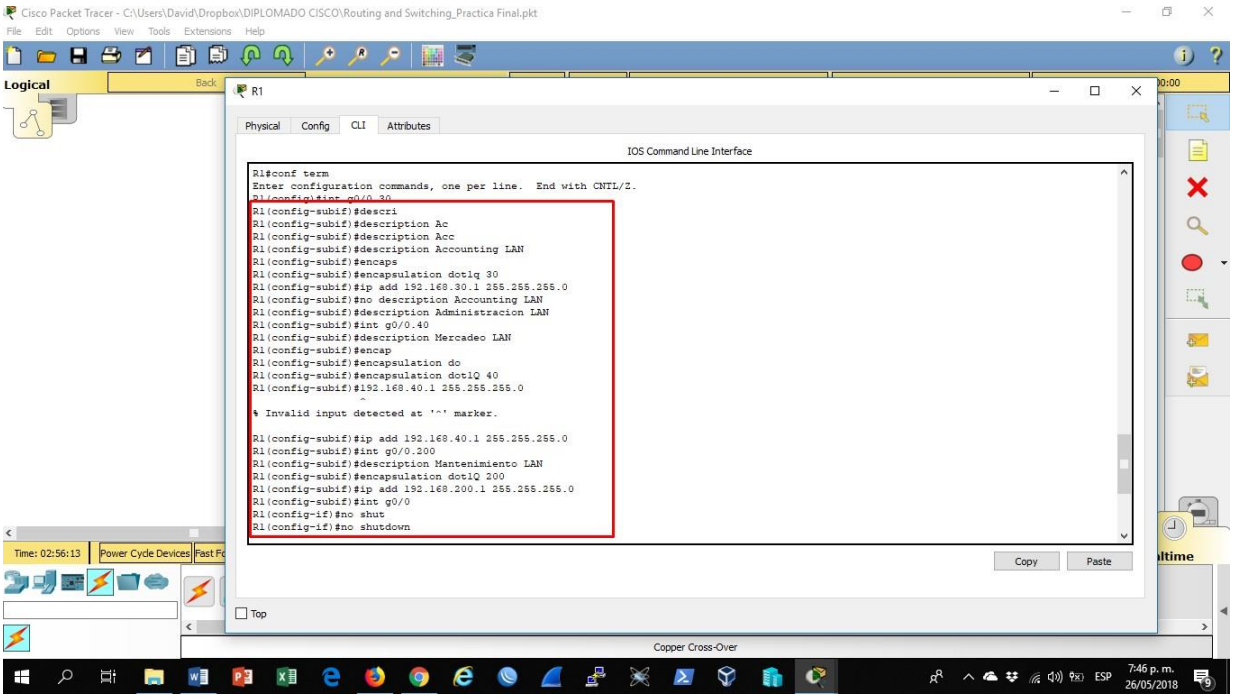

Cisco Packet Tracer - C:\Users\David\Dropbox\DIPLOMADO CISCO\Routing and Switching_Practica Final.pkt
S1
Physical
Config
CLI
Attributes
IOS Command Line Interface
S1(config-if)#switchport trunk native vlan 1
S1(config-if)#int f0/24
S1(config-if)#switchport mode trunk
S1(config-if)#switchport trunk native vlan 1
S1(config-if)#int range fa0/2, fa0/4, fa0/6-23, gl/1-2
interface range not validated - command rejected
S1(config)#int range fa0/2, fa0/4-23, gl/1-2
interface range not validated - command rejected
S1(config)#int range fa0/2, fa0/4-23, gl/1-2 ?
, comma
<cr>
S1(config)#int range fa0/2, fa0/4-23, gl/1-2
interface range not validated - command rejected
S1(config)#int range ?
Ethernet IEEE 802.3
FastEthernet FastEthernet IEEE 802.3
GigabitEthernet GigabitEthernet IEEE 802.3z
Vlan Vlan interface
S1(config)#int range fa0/1-2, fa0/4, fa0/6-24, gl/1-2
interface range not validated - command rejected
S1(config)#int range fa0/2 , fa0/4 , fa0/5-23 , gl/1-2
interface range not validated - command rejected
S1(config)#int range fa0/2, fa0/4, fa0/5-23, gl/1-2
interface range not validated - command rejected
S1(config)#int range fa0/5-23, gl/1-2
interface range not validated - command rejected
S1(config)#int range fa0/2, fa0/4, fa0/5-23, g0/1-2
S1(config-if-range)#swit
S1(config-if-range)#switchport mo
S1(config-if-range)#switchport mode acc
S1(config-if-range)#switchport mode access
S1(config-if-range)#
Copy
Paste
Top
Logical
Back
Time: 02:07:17
Power Cycle Devices
Copper Cross-Over
ESP
6:57 p. m.
26/05/2018


Cisco Packet Tracer - C:\Users\David\Dropbox\DIPLOMADO CISCO\Routing and Switching_Practica Final.pkt
S1
Physical
Config
CLI
Attributes
IOS Command Line Interface
S1(config)#int range fa0/1-2, fa0/4, fa0/6-24, gi1/1-2
interface range not validated - command rejected
S1(config)#int range fa0/2 , fa0/4 , fa0/5-23 , gi1/1-2
interface range not validated - command rejected
S1(config)#int range fa0/2, fa0/4, fa0/5-23, gi1/1-2
interface range not validated - command rejected
S1(config)#int range fa0/5-23, gi1/1-2
interface range not validated - command rejected
S1(config)#int range fa0/2, fa0/4, fa0/5-23, g0/1-2
S1(config-if-range)#swit
S1(config-if-range)#switchport mo
S1(config-if-range)#switchport mode acc
S1(config-if-range)#switchport mode access
S1(config-if-range)#int fa0/1
S1(config-if)#swit
S1(config-if)#switchport mode
S1(config-if)#switchport mode acc
S1(config-if)#switchport mode access
S1(config-if)#switchport access vlan 30
S1(config-if)#int range fa0/2, fa0/4, fa0/5-23, g0/1-2
S1(config-if-range)#shut
S1(config-if-range)#shutdown
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to administratively down
Copy
Paste
Top
Logical
Time: 02:13:42
Power Cycle Devices
Copper Cross-Over
ESP
7:03 p. m.
26/05/2018

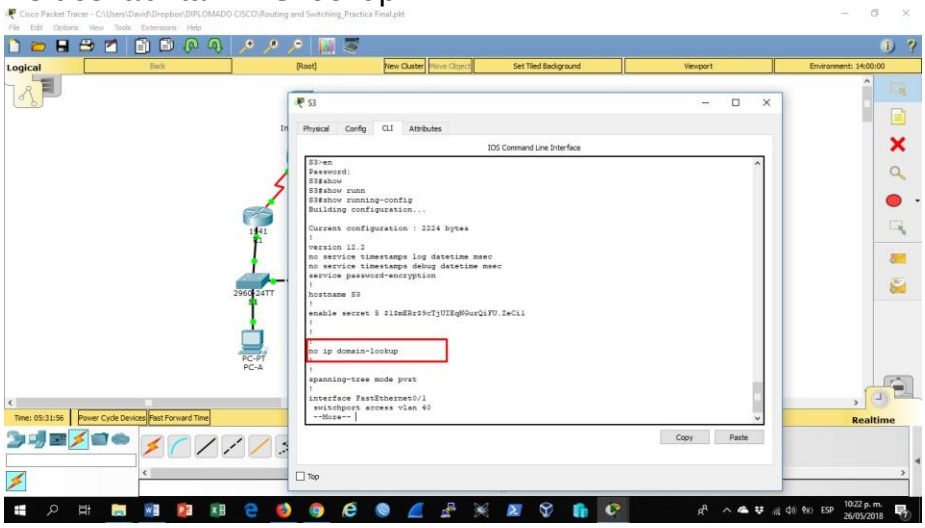

Cisco Packet Tracer - C:\Users\David\Dropbox\DIPLOMADO CISCO\Routing and Switching_Practica Final.pkt
S3
Physical
Config
CLI
Attributes
IOS Command Line Interface
User Access Verification
Password:
S3>en
Password:
S3#conf ter
S3#conf terminal
Enter configuration commands, one per line. End with CNTL/Z.
S3(config)#vlan 30
S3(config-vlan)#name Administracion
S3(config-vlan)#vlan 40
S3(config-vlan)#name Mercadeo
S3(config-vlan)#vlan 200
S3(config-vlan)#name Mantenimiento
S3(config-vlan)#exit
S3(config)#vlan 30
S3(config-vlan)#exit
S3(config)#int vlan 30
S3(config-if)#
%LINK-5-CHANGED: Interface Vlan30, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan30, changed state to up
S3(config-if)#ip add 192.168.30.3 255.255.255.0
S3(config-if)#no shut
S3(config-if)#no shutdown
S3(config-if)#exit
S3(config)#ip def
Copy
Paste
Top
Logical
Copper Cross-Over
ESP
7:23 p. m.
26/05/2018


Cisco Packet Tracer - C:\Users\David\Dropbox\DIPLOMADO CISCO\Routing and Switching_Practica Final.pkt
File Edit Options View Tools Extensions Help
Logical
S3
Physical Config CLI Attributes
IOS Command Line Interface
S3(config)#vlan 30
S3(config-vlan)#exit
S3(config)#int vlan 30
S3(config-if)#
%LINK-5-CHANGED: Interface Vlan30, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan30, changed state to up
S3(config-if)#ip add 192.168.30.3 255.255.255.0
S3(config-if)#no shut
S3(config-if)#no shutdown
S3(config-if)#exit
S3(config)#ip def
S3(config)#ip default-gateway 192.168.30.1
S3(config)#int fa0/3
S3(config-if)#swit
S3(config-if)#switchport m
S3(config-if)#switchport mode tr
S3(config-if)#switchport mode trunk
S3(config-if)#switchport trunk native vlan 1
S3(config-if)#int range fa0/1-2, fa0/4-24, g0/1-2
S3(config-if-range)#swit
S3(config-if-range)#switchport mod
S3(config-if-range)#switchport mode acc
S3(config-if-range)#switchport mode access
S3(config-if)#swit
S3(config-if)#switchport ac
S3(config-if)#switchport mode
S3(config-if)#switchport mode add
Copy
Paste
Top
Copper Cross-Over
ESP
7:24 p. m.
26/05/2018

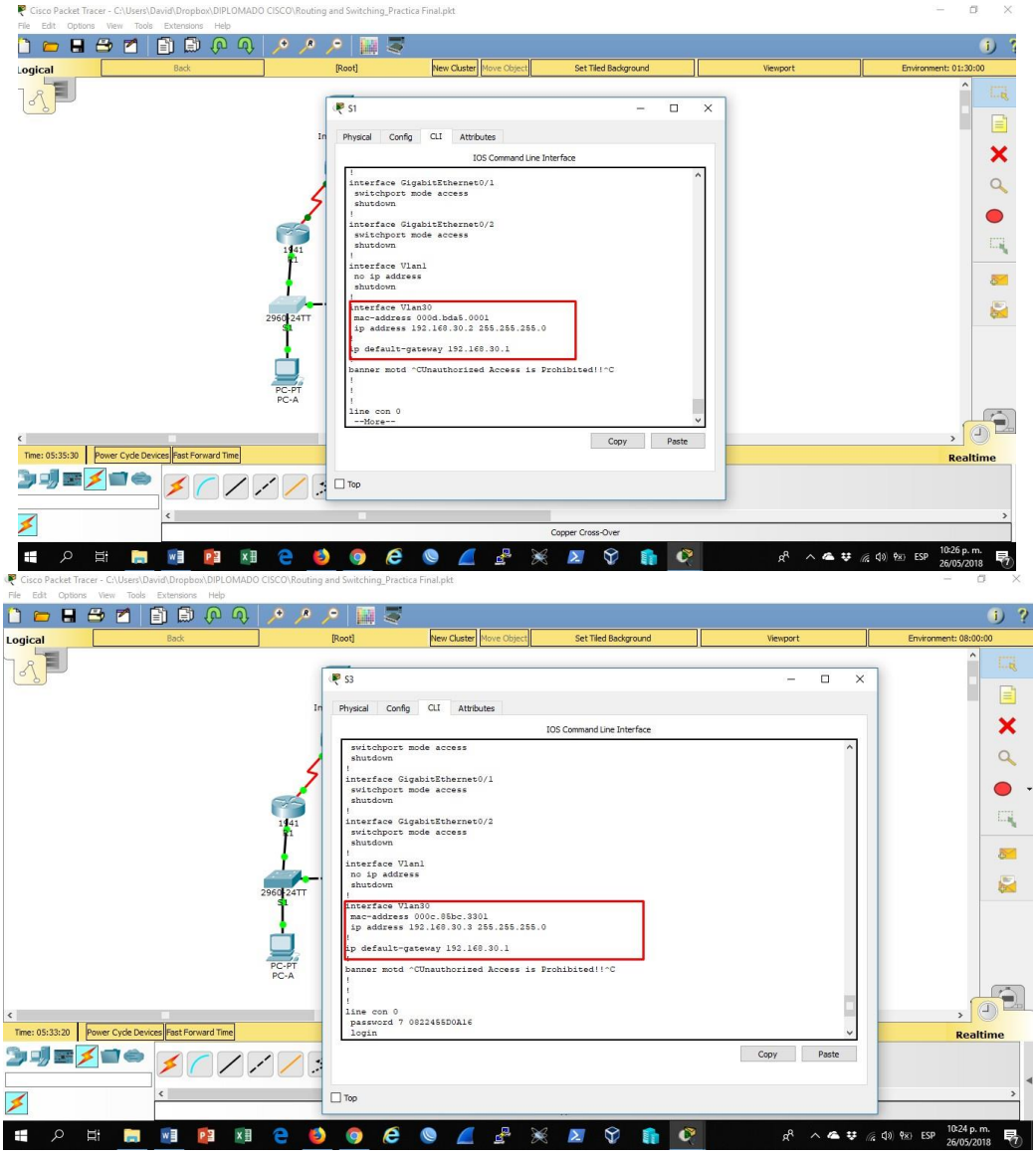

Cisco Packet Tracer - C:\Users\David\Dropbox\DIPLOMADO CISCO\Routing and Switching_Practica Final.pkt
File Edit Options View Tools Extensions Help
Logical
S3
Physical Config CLI Attributes
IOS Command Line Interface
S3(config-if-range)#switchport mod
S3(config-if-range)#switchport mode acc
S3(config-if-range)#switchport mode access
S3(config-if-range)#int fa0/1
S3(config-if)#swit
S3(config-if)#switchport ac
S3(config-if)#switchport mode
S3(config-if)#switchport mode add
S3(config-if)#switchport mode ac
S3(config-if)#switchport mode access
S3(config-if)#switchport access vlan 40
S3(config-if)#int ra
S3(config-if)#int range fa0/2, fa0/4-24, g0/1-2
S3(config-if-range)#shut
S3(config-if-range)#shutdown
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/7, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/8, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/9, changed state to administratively down
Copy
Paste
Top
Copper Cross-Over
ESP
7:25 p. m.
26/05/2018



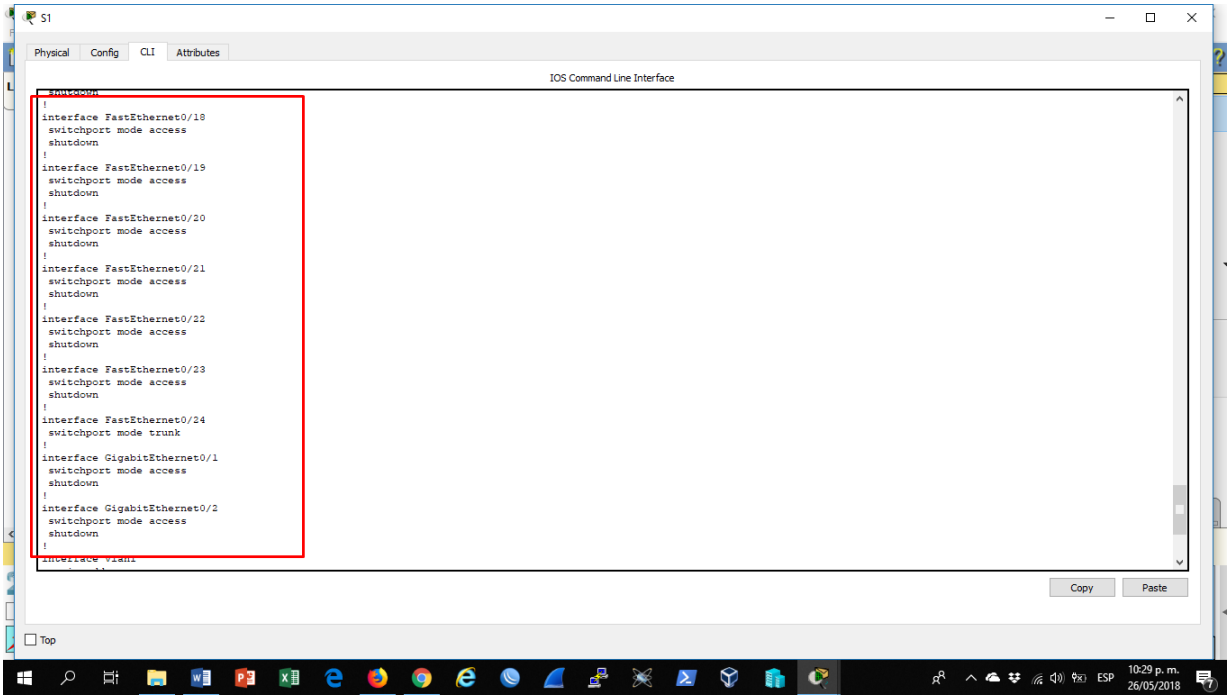
4. En el Switch 3 deshabilitar DNS lookup

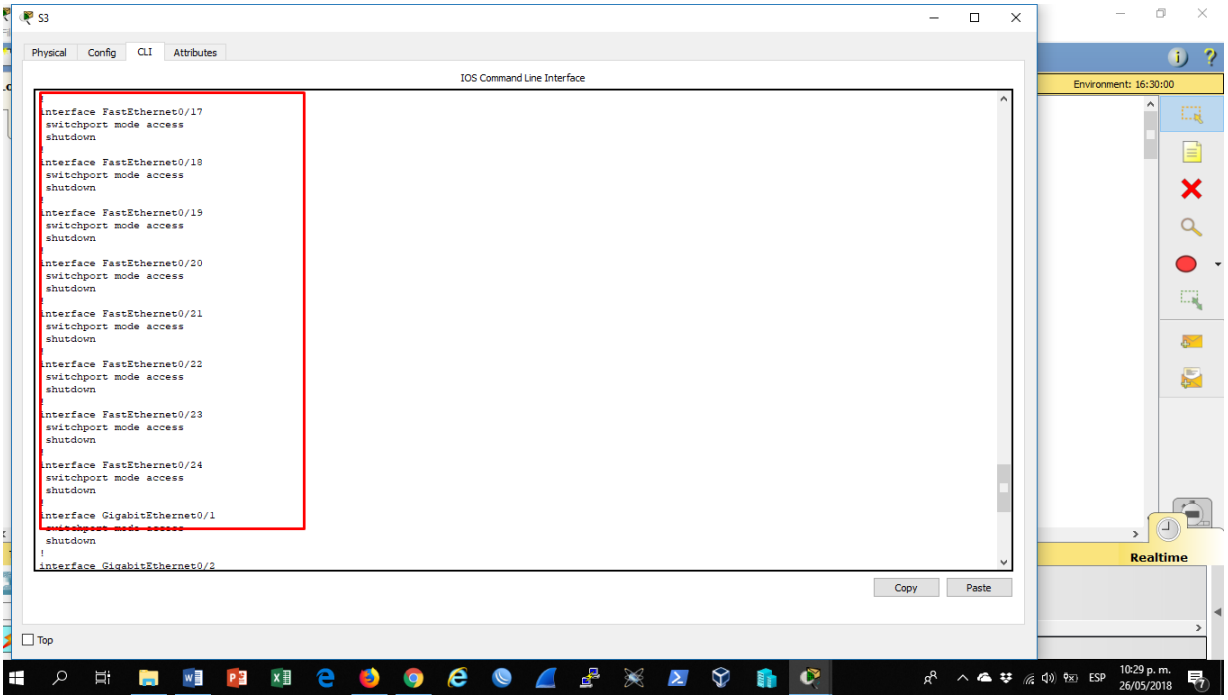


5. Asignar direcciones IP a los Switches acorde a los lineamientos.

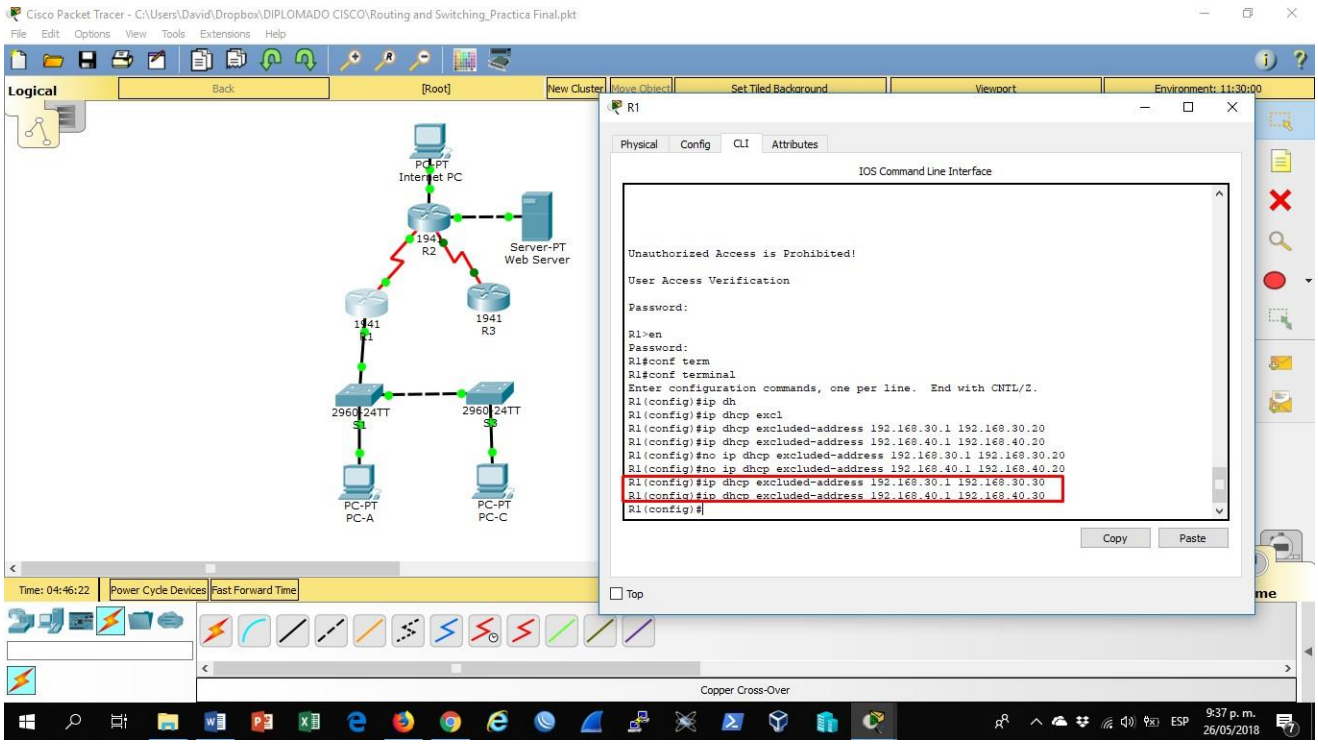


6. Desactivar todas las interfaces que no sean utilizadas en el esquema de red.

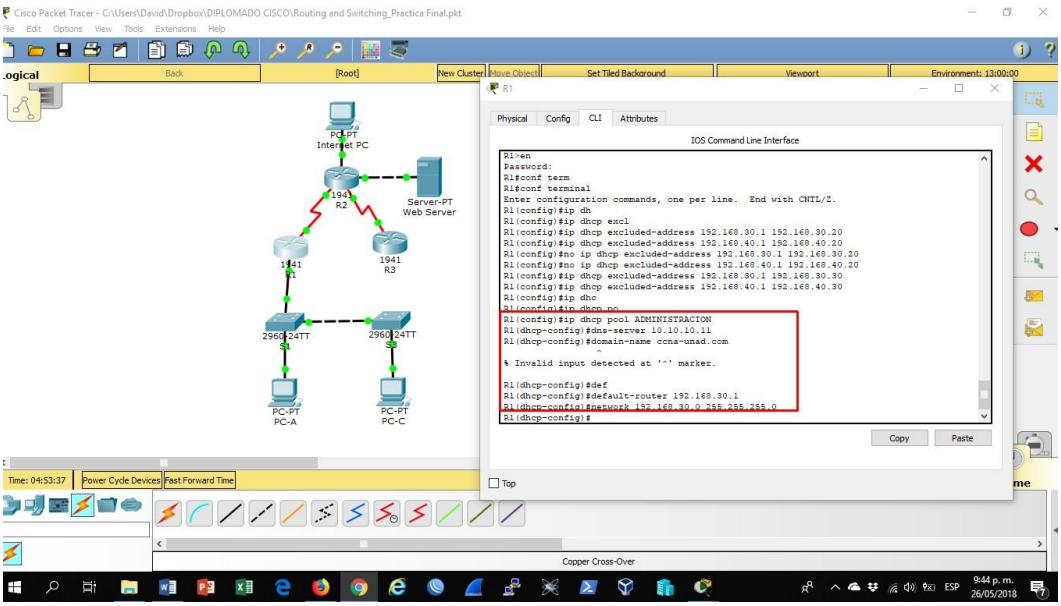




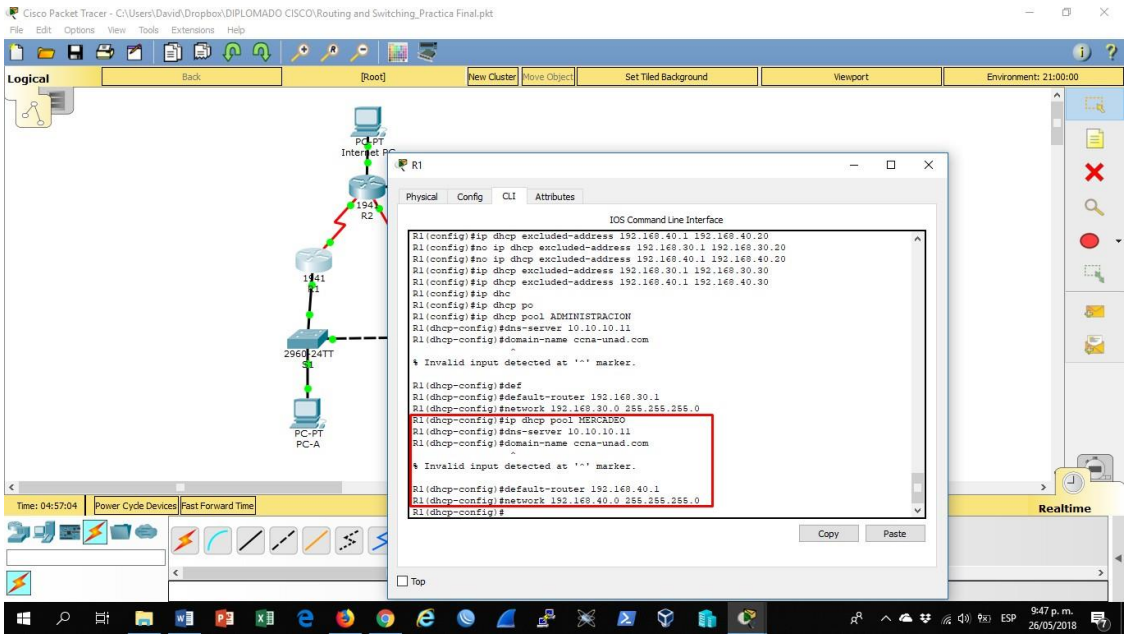
7. Implement DHCP and NAT for IPv4, configurar R1 como servidor DHCP para las VLANs 30 y 40. Reservar las primeras 30 direcciones IP de las VLAN 30 y 40 para configuraciones estáticas.



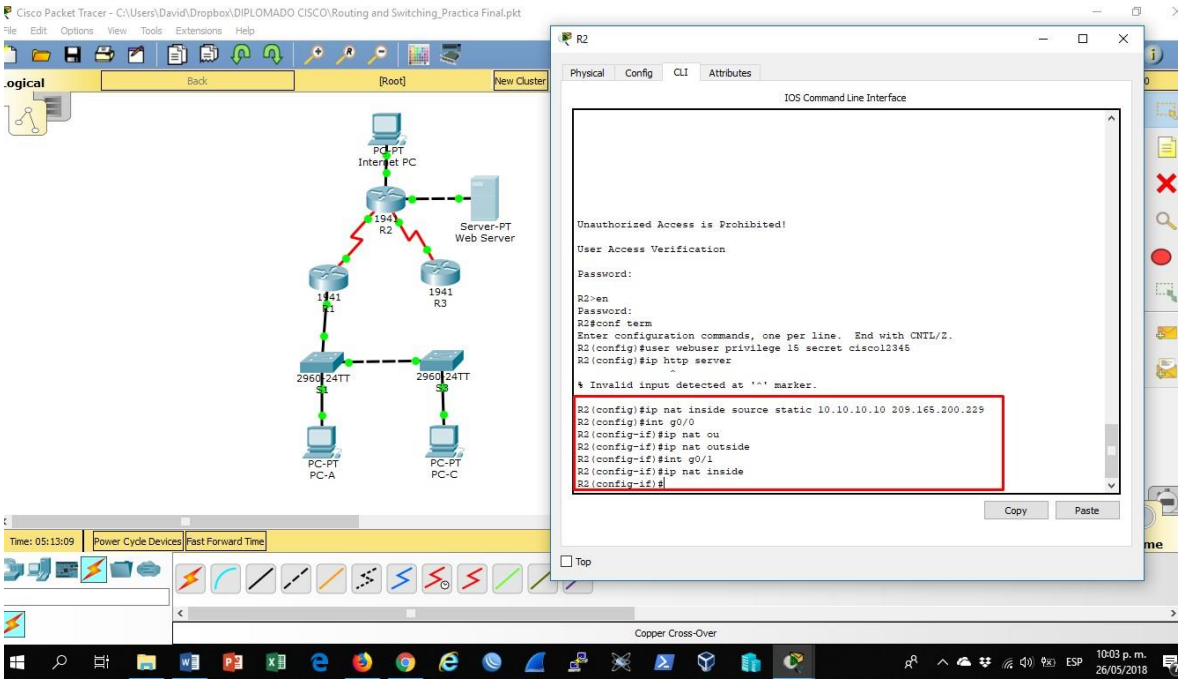
Configurar DHCP pool para VLAN 30	Name: ADMINISTRACION DNS-Server: 10.10.10.11 Domain-Name: ccna-unad.com Establecer default gateway.



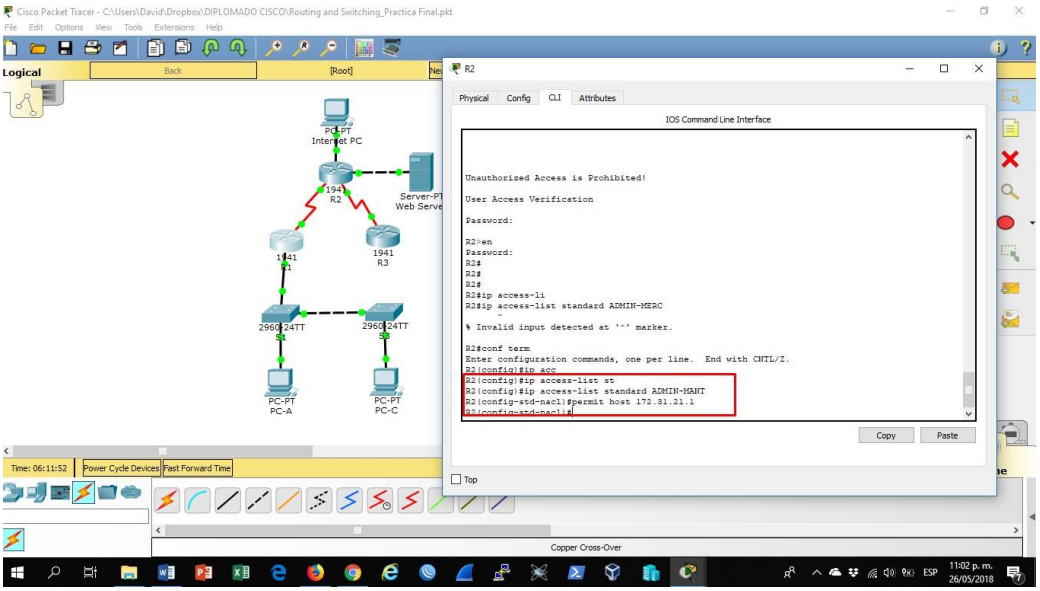
Configurar DHCP pool para VLAN 40	Name: MERCADEO DNS-Server: 10.10.10.11 Domain-Name: ccna-unad.com Establecer default gateway.

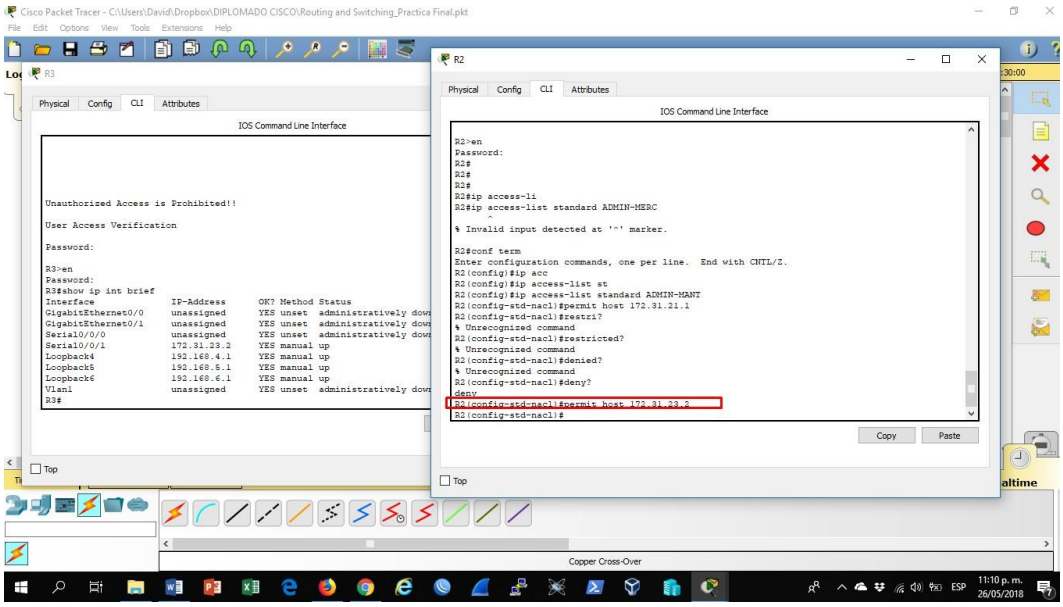


8. Configurar NAT en R2 para permitir que los host puedan salir a internet

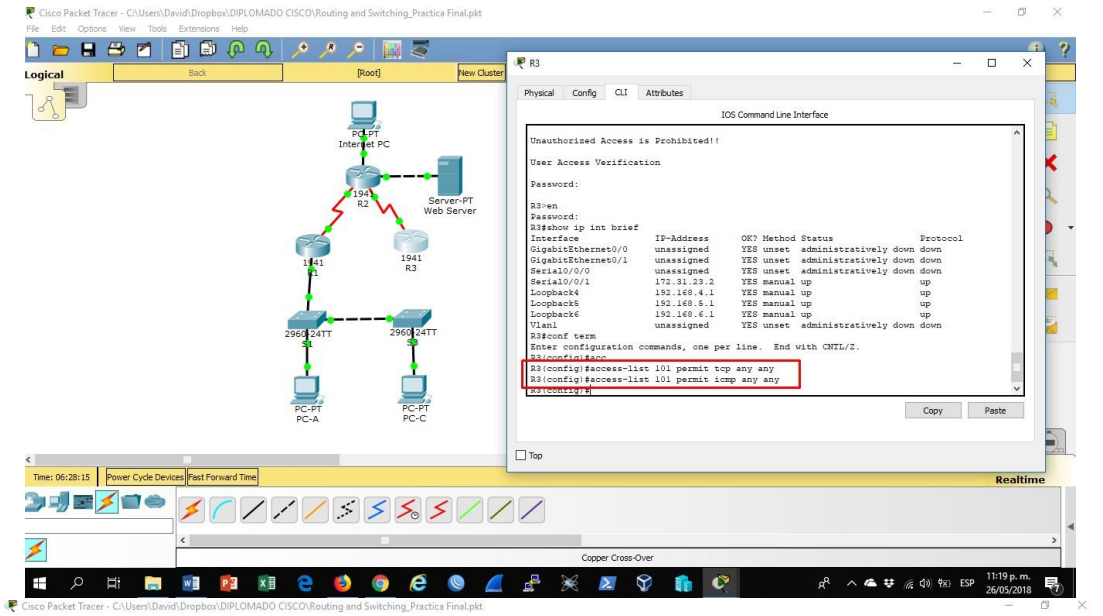


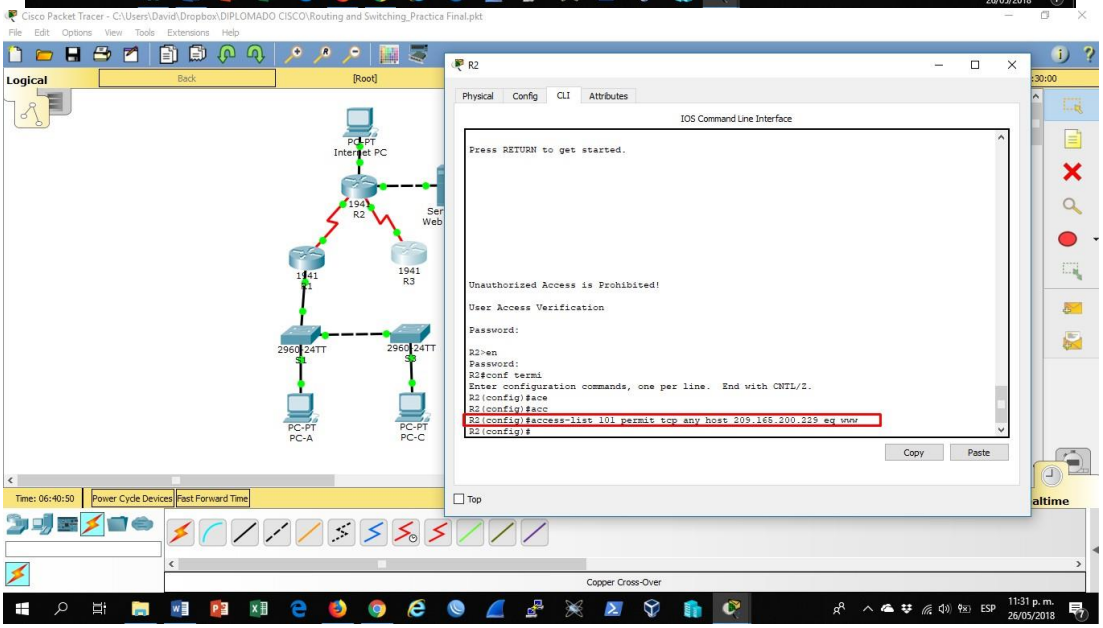
9. Configurar al menos dos listas de acceso de tipo estándar a su criterio en para restringir o permitir tráfico desde R1 o R3 hacia R2.



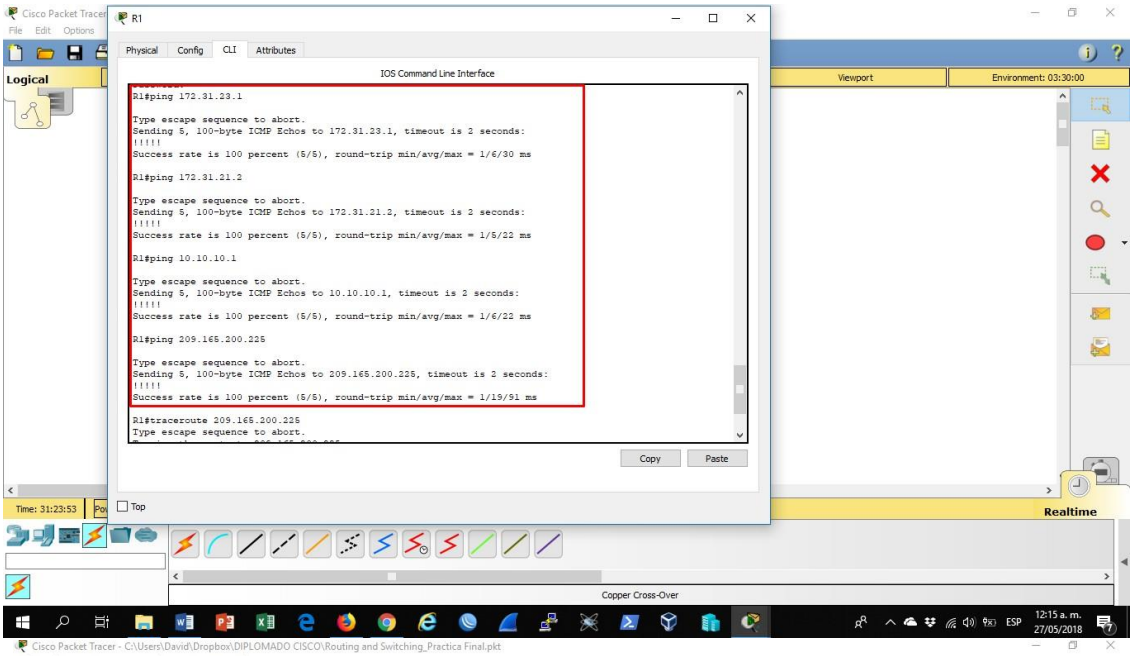


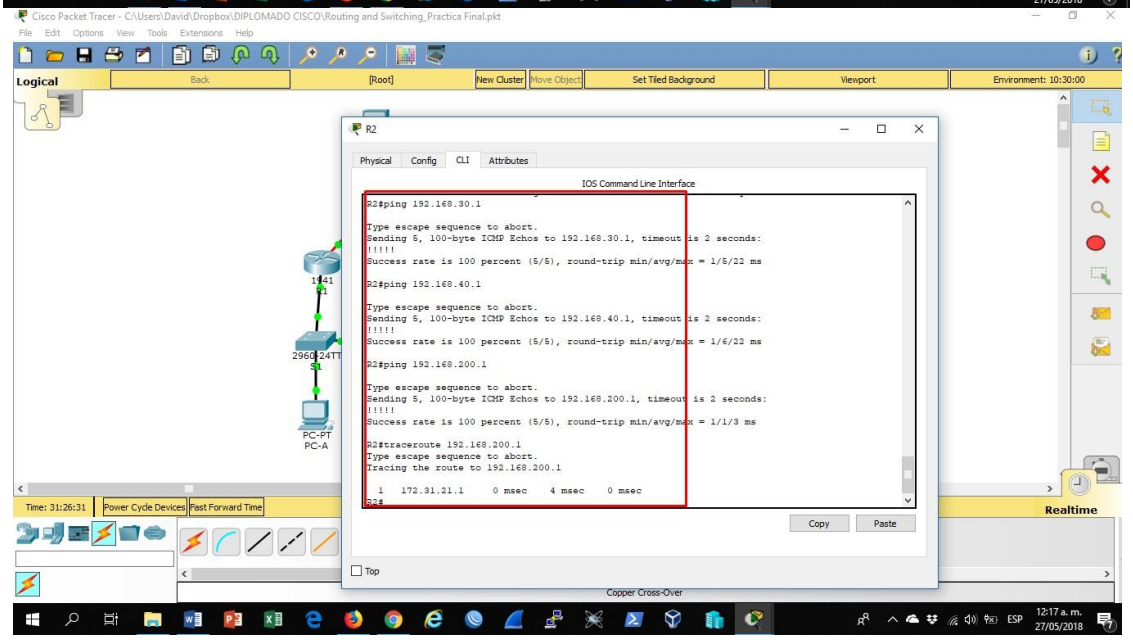
10. Configurar al menos dos listas de acceso de tipo extendido o nombradas a su criterio en para restringir o permitir tráfico desde R1 o R3 hacia R2.

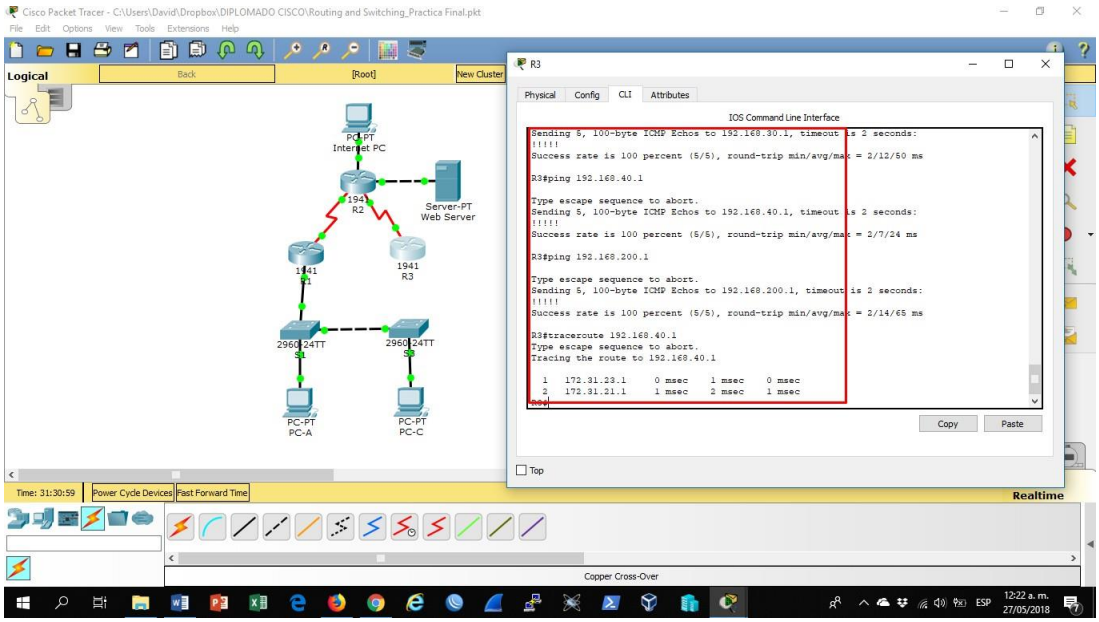




11. Verificar procesos de comunicación y redireccionamiento de tráfico en los routers mediante el uso de Ping y Traceroute.


R1
Physical
Config
CLI
Attributes
IOS Command Line Interface
R1#ping 172.31.23.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.31.23.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/6/30 ms
R1#ping 172.31.21.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.31.21.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/5/22 ms
R1#ping 10.10.10.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.10.10.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/6/22 ms
R1#ping 209.165.200.225
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 209.165.200.225, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/19/91 ms
R1#traceroute 209.165.200.225
Type escape sequence to abort.
Copy
Paste
Top
Logical
Viewport
Environment: 03:30:00
Realtime
Copper Cross-Over


Logical
Back
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Environment: 10:30:00
R2
Physical
Config
CLI
Attributes
IOS Command Line Interface
R2#ping 192.168.30.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.30.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/5/22 ms
R2#ping 192.168.40.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.40.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/6/22 ms
R2#ping 192.168.200.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.200.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/3 ms
R2#traceroute 192.168.200.1
Type escape sequence to abort.
Tracing the route to 192.168.200.1
1 172.31.21.1 0 msec 4 msec 0 msec
R2#
Copy
Paste
Top
PC-PT
PC-A
Time: 31:26:31
Power Cycle Devices
Fast Forward Time
Realtime
Copper Cross-Over


Cisco Packet Tracer - C:\Users\David\Dropbox\DIPLOMADO CISCO\Routing and Switching_Practica Final.pkt
File Edit Options View Tools Extensions Help
Logical
Back
[Root]
New Cluster
PC-PT
Internet PC
1941
R2
Server-PT
Web Server
1941
S1
1941
R3
2960-24TT
S2
2960-24TT
S3
PC-PT
PC-A
PC-PT
PC-C
Time: 31:30:59
Power Cycle Devices
Fast Forward Time
Realtime
Copper Cross-Over
R3
Physical
Config
CLI
Attributes
IOS Command Line Interface
Sending 5, 100-byte ICMP Echos to 192.168.30.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/12/50 ms
R3#ping 192.168.40.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.40.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/7/24 ms
R3#ping 192.168.200.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.200.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/14/65 ms
R3#traceroute 192.168.40.1
Type escape sequence to abort.
Tracing the route to 192.168.40.1
1 172.31.23.1 0 msec 1 msec 0 msec
2 172.31.21.1 1 msec 2 msec 1 msec
R3#
Copy
Paste
Top
ESP
12:22 a. m.
27/05/2018

CONCLUSIONES

- Gracias al desarrollo de la prueba de habilidades se logró profundizar en los respectivos conocimientos y conceptos que se adquirieron duran te el Diplomado en Redes CISCO CCNA (Routing & Switching).

- La plataforma Cisco Packet Tracer proporciona diversas herramientas que sirven para simular los diferentes escenarios propuestos en los laboratorios, cabe destacar que se presentaron inconvenientes en las diversas pruebas de laboratorio donde se generaban errores de conexión y/o de envío de paquetes entre dispositivos, se revisaba la configuración que exigía el ejercicio pero todo estaba de acuerdo a lo propuesto, gracias a una breve investigación en la Wiki de Cisco encontramos que estos errores depende de las versiones o actualizaciones de la plataforma, para ello se hicieron pruebas con diferentes versiones y se procedía a simular la misma configuración en las diferentes versiones de la plataforma, en versiones anteriores corrió sin ningún problema, en versiones posteriores presento error.

- Para realizar las configuraciones de los diferentes dispositivos es indispensable conocer los comandos más relevantes de otra forma es complejo tratar de desarrollar la guía propuesta en esta prueba de habilidades.

- Es importante que se anexe a la prueba de habilidades una sesión con configuración en IPv6, ya que hoy en día se debe migrar a este protocolo, porque las direcciones públicas en IPv4 están prácticamente agotadas.

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