



Universidad Autónoma de Chiapas

Facultad: Contaduría y Administración

Licenciatura: Ingeniería en Desarrollo y Tecnologías de Software

Conmutadores y Redes inalámbricas

“Act. 2.2 Ruteo entre vlans 2,3,4,5”



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Grupo: 7M

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En el Command-Line Interface del switch de capa 3, iniciamos creando las cuatro VLAN's (de la 2 a la 5), para posteriormente colocarle sus respectivas IP's con sus máscaras de red, y así utilizar esta información para el DHCP:

```
Multilayer Switch0
Physical Config CLI Attributes
IOS Command Line Interface

Switch>ena
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 2
Switch(config-vlan)#name marketing
Switch(config-vlan)#exit
Switch(config)#vlan 3
Switch(config-vlan)#name produccion
Switch(config-vlan)#exit
Switch(config)#vlan 4
Switch(config-vlan)#name transporte
Switch(config-vlan)#exit
Switch(config)#vlan 5
Switch(config-vlan)#name recursosHumanos
Switch(config-vlan)#exit
Switch(config)#interface vlan 2
Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan2, changed state to up

Switch(config-if)#ip address 192.168.3.1 255.255.255.224
Switch(config-if)#no sh
Switch(config-if)#exit
Switch(config)#interface vlan 3
Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan3, changed state to up

Switch(config-if)#ip address 192.168.4.1 255.255.255.128
Switch(config-if)#no sh
Switch(config-if)#exit
Switch(config)#interface vlan 4
Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan4, changed state to up

Switch(config-if)#ip address 192.168.5.1 255.255.255.192
Switch(config-if)#no sh
Switch(config-if)#exit
Switch(config)#interface vlan 5
Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan5, changed state to up

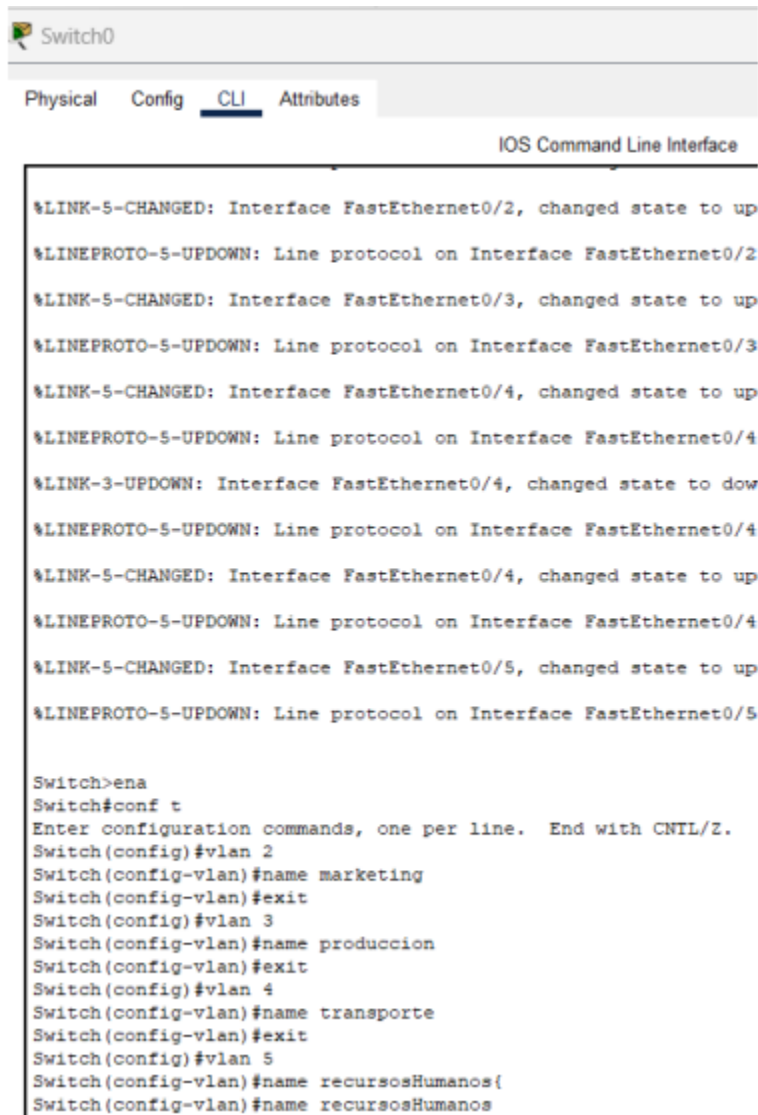
Switch(config-if)#ip address 192.168.6.1 255.255.255.0
Switch(config-if)#no sh
Switch(config-if)#exit
```

Después configurar el encapsulamiento troncal de fa 0/1 (puerto que conecta el switch0 con el switch de capa 3).

```
Switch(config-if)#exit
Switch(config)#interface fa 0/1
Switch(config-if)#switchport trunk encapsulation dot1q
Switch(config-if)#switchport mode trunk
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
WR
Building configuration...
[OK]
Switch#
```

Switch0

En el switch0 creamos las cuatro mismas VLAN (con el mismo número de VLAN y nombres)



```
Switch0
Physical Config CLI Attributes
IOS Command Line Interface

%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2
%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3
%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4
%LINK-3-UPDOWN: Interface FastEthernet0/4, changed state to dow
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4
%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4
%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/5

Switch>ena
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 2
Switch(config-vlan)#name marketing
Switch(config-vlan)#exit
Switch(config)#vlan 3
Switch(config-vlan)#name produccion
Switch(config-vlan)#exit
Switch(config)#vlan 4
Switch(config-vlan)#name transporte
Switch(config-vlan)#exit
Switch(config)#vlan 5
Switch(config-vlan)#name recursosHumanos(
Switch(config-vlan)#name recursosHumanos
```

Ya creadas las cuatro VLAN en el switch0, configuramos con modo acceso los cuatro puertos para conectar las interfaces de la fa 0/2 a la fa 0/5. Y para la fa 0/1 hay que configurar el modo troncal autorizado para la VLAN 2, 3, 4 y 5.

```
Switch(config-if)#exit
Switch(config)#
Switch(config)#interface fa 0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 2
Switch(config-if)#exit
Switch(config)#interface fa 0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#exit
Switch(config)#interface fa 0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 4
Switch(config-if)#exit
Switch(config)#interface fa 0/5
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 5
Switch(config-if)#exit
Switch(config)#interface fa 0/1
Switch(config-if)#switchport mode trunk
```

```

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

Switch(config-if)#switchport trunk allowed
^
% Invalid input detected at '^' marker.

Switch(config-if)#switchport trunk allowed vlan 2,3,4,5
Switch(config-if)#exit
Switch(config)#

```

```

-----
Switch(config)#interface gi 0/1
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to down


%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

```

Switch1

Estas capturas muestran toda la configuración necesaria para el switch0.

 Switch1

Physical Config CLI Attributes

IOS Command Line Interface

```

%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to u
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/
%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to u
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/
%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to u
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/
%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to u
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/
%SPANTREE-2-RECV_FVID_ERR: Received 802.1Q BPDU on non trunk I
%SPANTREE-2-BLOCK_FVID_LOCAL: Blocking FastEthernet0/1 on VLAN
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/

Switch>ena
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 2
Switch(config-vlan)#name marketing
Switch(config-vlan)#exit
Switch(config)#vlan 3
Switch(config-vlan)#name produccion
Switch(config-vlan)#exit
Switch(config)#vlan 4
Switch(config-vlan)#name transporte
Switch(config-vlan)#exit
Switch(config)#vlan 5
Switch(config-vlan)#name recursosHumanos
Switch(config-vlan)#exit
Switch(config)#

```

```

Switch(config)#interface fa 0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 2
Switch(config-if)#exit
Switch(config)#interface fa 0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#exit
Switch(config)#interface fa 0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 4
Switch(config-if)#exit
Switch(config)#interface fa 0/5
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 5
Switch(config-if)#exit
Switch(config)#

Switch(config)#interface fa 0/1
Switch(config-if)#switchport mode trunk
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
vr
Building configuration...
[OK]
Switch#

```

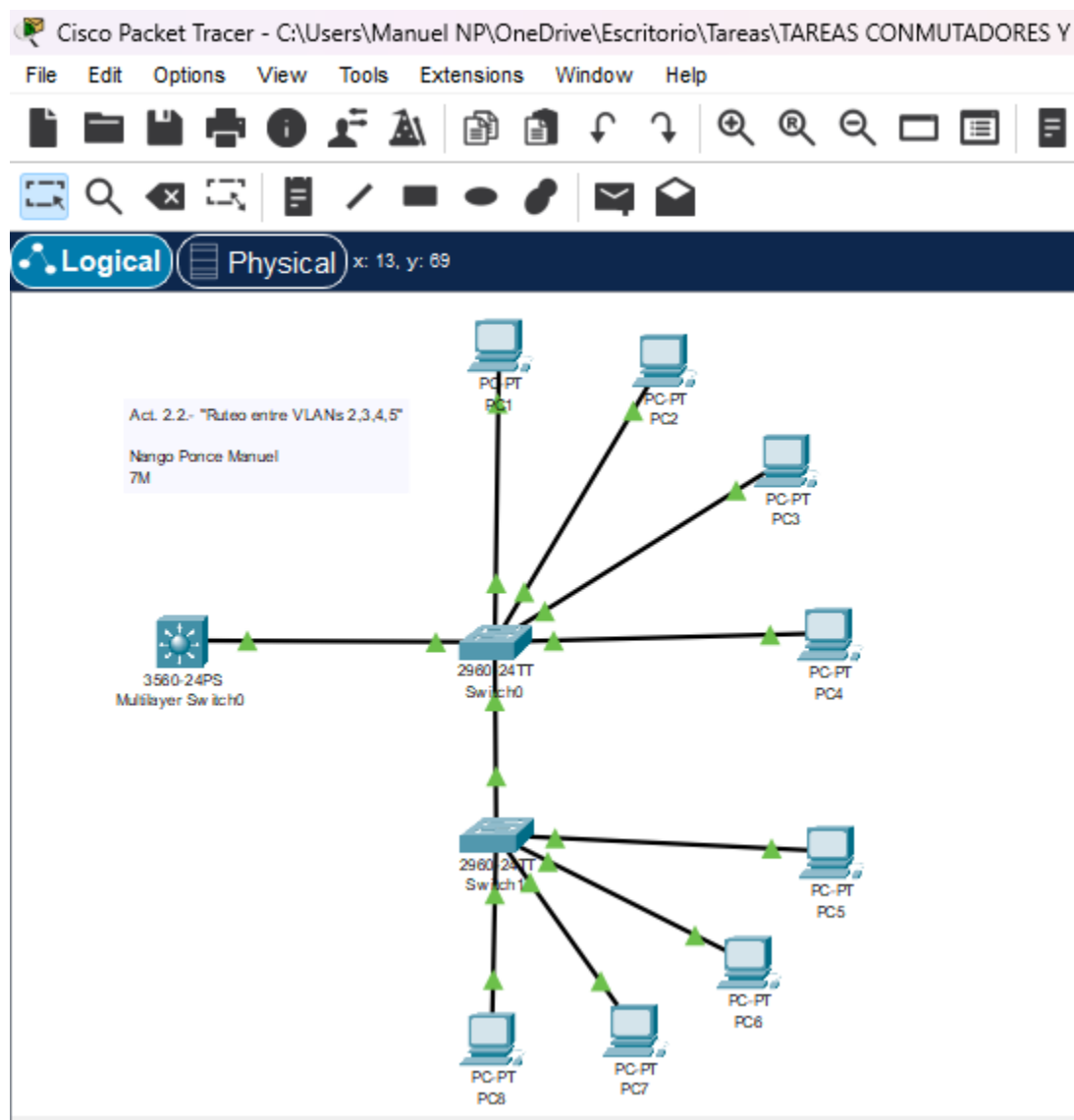
Debemos hacer las respectivas exclusiones para cada VLAN.

```
Multilayer Switch0
Physical  Config  CLI  Attributes

Switch>ena
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface vlan 2
Switch(config-if)#ip dhcp excluded-address 192.168.3.1
Switch(config-if)#ip dhcp excluded-address 192.168.3.2
Switch(config-if)#ip dhcp excluded-address 192.168.3.3
Switch(config-if)#ip dhcp excluded-address 192.168.3.4
Switch(config-if)#ip dhcp excluded-address 192.168.3.5
Switch(config-if)#ip dhcp excluded-address 192.168.3.6
Switch(config-if)#ip dhcp pool vlan 2
Switch(config-if)#
^
% Invalid input detected at '^' marker.

Switch(config)#ip dhcp pool vlan2
Switch(dhcp-config)#network 192.168.3.0 255.255.255.224
Switch(dhcp-config)#default-router 192.168.3.1
Switch(dhcp-config)#exit
Switch(config)#
Switch(config)#interface vlan 3
Switch(config-if)#ip dhcp excluded-address 192.168.4.1
Switch(config-if)#ip dhcp excluded-address 192.168.4.2
Switch(config-if)#ip dhcp excluded-address 192.168.4.3
Switch(config-if)#ip dhcp excluded-address 192.168.4.4
Switch(config-if)#ip dhcp excluded-address 192.168.4.5
Switch(config-if)#ip dhcp excluded-address 192.168.4.6
Switch(config-if)#ip dhcp pool vlan3
Switch(dhcp-config)#network 192.168.4.0 255.255.255.128
Switch(dhcp-config)#default-router 192.168.4.1
Switch(dhcp-config)#exit
Switch(config)#
Switch(config)#interface vlan 4
Switch(config-if)#ip dhcp excluded-address 192.168.5.1
Switch(config-if)#ip dhcp excluded-address 192.168.5.2
Switch(config-if)#ip dhcp excluded-address 192.168.5.3
Switch(config-if)#ip dhcp excluded-address 192.168.5.4
Switch(config-if)#ip dhcp excluded-address 192.168.5.5
Switch(config-if)#ip dhcp excluded-address 192.168.5.6
Switch(config-if)#ip dhcp pool vlan4
Switch(dhcp-config)#network 192.168.5.0 255.255.255.192
Switch(dhcp-config)#default-router 192.168.5.1
Switch(dhcp-config)#exit
Switch(config)#
Switch(config)#interface vlan 5
Switch(config-if)#ip dhcp excluded-address 192.168.6.1
Switch(config-if)#ip dhcp excluded-address 192.168.6.2
Switch(config-if)#ip dhcp excluded-address 192.168.6.3
Switch(config-if)#ip dhcp excluded-address 192.168.6.4
Switch(config-if)#ip dhcp excluded-address 192.168.6.5
Switch(config-if)#ip dhcp excluded-address 192.168.6.6
Switch(config-if)#ip dhcp pool vlan5
Switch(dhcp-config)#network 192.168.6.0 255.255.255.0
Switch(dhcp-config)#default-router 192.168.6.1
Switch(dhcp-config)#exit
Switch(config)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
wr
Building configuration...
[OK]
Switch#
```

Adjunto Captura del resultado:



Hay comunicación entre las mismas VLAN, pero no la hay con diferentes VLAN

Realtime Simulation											
Scenario 0	Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
New Delete Toggle PDU List Window	Successful		PC1	PC5	ICMP	Green	0.000	N	0	(edit)	(delete)
	Failed		PC1	PC6	ICMP	Red	0.000	N	1	(edit)	(delete)
	Successful		PC2	PC6	ICMP	Purple	0.000	N	2	(edit)	(delete)