



Configuración de Switch CISCO con Packet Tracer

Práctica 1

C.E.S ACADEMIA LOPE DE VEGA
CFGS: 1º Administración de Sistemas Informáticos en Red Curso:
2016/2017

Asignatura: Planificación y Administración de Redes
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Enunciado

Utilizando el simulador de redes packet tracer realiza la siguiente configuración de red:

- Switch central de 24 bocas modelo 2950
- 10 equipos terminales tipo pc conectados a las 10 primeras bocas del switch

Configuración

A cada equipo terminal se le va a asignar una configuración IP. Aunque aún no se ha visto en teoría qué es una dirección IP y cómo se configura, simplemente, y utilizando la ventana de configuración IP de la interfaz gráfica de configuración del host, debéis introducir los siguientes datos para cada uno de los 10 equipos.

Dirección IP: 192.168.1.X

Máscara de subred: 255.255.255.0

Donde X es el número de equipo, es decir, tomará valores desde el 1 al 10.

Ejercicios

A) Comprobaremos que todos los equipos están conectados entre ellos haciendo un ping desde el equipo 1 a los demás. Si al realizar el ping se nos devuelve una respuesta significará que existe esa conexión. Para ello nos iremos al *command prompt* que se encuentra en el escritorio del equipo e introduciremos el comando **ping 192.168.1.X**, siendo X el número del equipo. Como vemos en todos los casos existe conexión:

Packet Tracer PC Command Line 1.0	C:\>ping 192.168.1.5	C:\>ping 192.168.1.8
C:\>ping 192.168.1.2		
Pinging 192.168.1.2 with 32 bytes of data:	Pinging 192.168.1.5 with 32 bytes of data:	Pinging 192.168.1.8 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128	Reply from 192.168.1.5: bytes=32 time<1ms TTL=128	Reply from 192.168.1.8: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128	Reply from 192.168.1.5: bytes=32 time<1ms TTL=128	Reply from 192.168.1.8: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128	Reply from 192.168.1.5: bytes=32 time<1ms TTL=128	Reply from 192.168.1.8: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128	Reply from 192.168.1.5: bytes=32 time<1ms TTL=128	Reply from 192.168.1.8: bytes=32 time<1ms TTL=128
Ping statistics for 192.168.1.2:	Ping statistics for 192.168.1.5:	Ping statistics for 192.168.1.8:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),	Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),	Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:	Approximate round trip times in milli-seconds:	Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms	Minimum = 0ms, Maximum = 0ms, Average = 0ms	Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 192.168.1.3	C:\>ping 192.168.1.6	C:\>ping 192.168.1.9
Pinging 192.168.1.3 with 32 bytes of data:	Pinging 192.168.1.6 with 32 bytes of data:	Pinging 192.168.1.9 with 32 bytes of data:
Reply from 192.168.1.3: bytes=32 time=2ms TTL=128	Reply from 192.168.1.6: bytes=32 time<1ms TTL=128	Reply from 192.168.1.9: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128	Reply from 192.168.1.6: bytes=32 time<1ms TTL=128	Reply from 192.168.1.9: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128	Reply from 192.168.1.6: bytes=32 time<1ms TTL=128	Reply from 192.168.1.9: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128	Reply from 192.168.1.6: bytes=32 time<1ms TTL=128	Reply from 192.168.1.9: bytes=32 time<1ms TTL=128
Ping statistics for 192.168.1.3:	Ping statistics for 192.168.1.6:	Ping statistics for 192.168.1.9:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),	Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),	Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:	Approximate round trip times in milli-seconds:	Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 2ms, Average = 0ms	Minimum = 0ms, Maximum = 0ms, Average = 0ms	Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>ping 192.168.1.4	C:\>ping 192.168.1.7	C:\>ping 192.168.1.10
Pinging 192.168.1.4 with 32 bytes of data:	Pinging 192.168.1.7 with 32 bytes of data:	Pinging 192.168.1.10 with 32 bytes of data:
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128	Reply from 192.168.1.7: bytes=32 time<1ms TTL=128	Reply from 192.168.1.10: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128	Reply from 192.168.1.7: bytes=32 time<1ms TTL=128	Reply from 192.168.1.10: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128	Reply from 192.168.1.7: bytes=32 time<1ms TTL=128	Reply from 192.168.1.10: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128	Reply from 192.168.1.7: bytes=32 time<1ms TTL=128	Reply from 192.168.1.10: bytes=32 time<1ms TTL=128
Ping statistics for 192.168.1.4:	Ping statistics for 192.168.1.7:	Ping statistics for 192.168.1.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),	Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),	Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:	Approximate round trip times in milli-seconds:	Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms	Minimum = 0ms, Maximum = 0ms, Average = 0ms	Minimum = 0ms, Maximum = 1ms, Average = 0ms

B) Ahora entraremos en la configuración del Switch. Primero, desde el modo usuario deberemos mostrar las distintas vlans existentes y en que bocas están configuradas. También mostraremos la configuración de interfaces. Para todo ello haremos uso del comando **show**.

Para mostrar las vlans y las bocas deberemos utilizar el comando **show vlan**, con lo que se nos mostrará una lista de ellas.

```
Switch>show vlan
```

VLAN Name	Status	Ports
1 default	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6, Fa0/7, Fa0/8 Fa0/9, Fa0/10, Fa0/11, Fa0/12 Fa0/13, Fa0/14, Fa0/15, Fa0/16 Fa0/17, Fa0/18, Fa0/19, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24 Gig0/1, Gig0/2
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0
1002	fddi	101002	1500	-	-	-	-	-	0	0
1003	tr	101003	1500	-	-	-	-	-	0	0
1004	fdnet	101004	1500	-	-	-	ieee	-	0	0
1005	trnet	101005	1500	-	-	-	ibm	-	0	0


```
Remote SPAN VLANs
```

Primary	Secondary	Type	Ports
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Para la configuración de interfaces utilizaremos el comando **show interfaces**, a partir del cual nos aparecerá una lista con toda la información de dichas interfaces.

```
Switch>show interfaces
FastEthernet0/1 is up, line protocol is up (connected)
  Hardware is Lance, address is 0002.16ae.2601 (bia 0002.16ae.2601)
  BW 100000 Kbit, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Full-duplex, 100Mb/s
  input flow-control is off, output flow-control is off
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:08, output 00:00:05, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue :0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    956 packets input, 193351 bytes, 0 no buffer
    Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    0 watchdog, 0 multicast, 0 pause input
    0 input packets with dribble condition detected
    2357 packets output, 263570 bytes, 0 underruns
--More--
```

Ahora desde el modo privilegiado (escribimos el comando **enable**) deberemos de guardar los cambios realizados en el switch y mostraremos si existen alguna lista de acceso o tcp. Para guardar la configuración introducimos el comando **copy running-config startup-config**

```
Switch#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Switch#
```

Para ver si existe alguna lista de acceso introducimos el comando **show access-lists**, y para la lista tcp el comando **show tcp**. Como vemos no nos aparece ninguna por tanto no existen lista de ninguno de los tipos.

```
Switch#show access-lists
Switch#show tcp
```

Y por último entramos en modo configuración. Desde este modo cambiaremos el switch de nombre, crearemos vlans y las asignaremos a unas bocas en concreto y realizaremos varios cambios en algunas interfaces.

Para entrar en el modo configuración del terminal deberemos introducir una vez que estemos en modo privilegiado el comando **configure terminal**. Una vez dentro de este modo, procedemos a cambiar de nombre al switch con el comando **hostname nombredeseado**, siendo SCentral el nombre que nosotros le queremos dar.

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SCentral
SCentral(config)#exit
SCentral#
```

Ahora tenemos que crear varias vlans, para ello nos iremos a un modo el cual nos permitirá modificar vlans utilizando el comando ***vlan database***. Una vez en este modo, para crear vlans introducimos el comando ***vlan n?vlan name nombredeseado***, por ejemplo vlan 1 name red1. Vamos a comprobar que hemos creado bien las vlans con el comando ***show vlans***.

```

SCentral#vlan database
% Warning: It is recommended to configure VLAN from config mode,
as VLAN database mode is being deprecated. Please consult user
documentation for configuring VTP/VLAN in config mode.

SCentral(vlan)#vlan 1 name red1
A default VLAN may not have its name changed.
SCentral(vlan)#vlan 2 name red2
VLAN 2 added:
  Name: red2
SCentral(vlan)#vlan 3 name red3
VLAN 3 added:
  Name: red3
SCentral(vlan)#vlan 4 name red4
VLAN 4 added:
  Name: red4
SCentral(vlan)#vlan 5 name red5
VLAN 5 added:
  Name: red5
SCentral(vlan)#exit
APPLY completed.
Exiting...
SCentral#show vlan

```

VLAN	Name	Status	Ports
1	default	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6, Fa0/7, Fa0/8 Fa0/9, Fa0/10, Fa0/11, Fa0/12 Fa0/13, Fa0/14, Fa0/15, Fa0/16 Fa0/17, Fa0/18, Fa0/19, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24 Gig0/1, Gig0/2
2	red2	active	
3	red3	active	
4	red4	active	
5	red5	active	
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0

--More-- |

Procedemos a asignar las bocas a las vlans anteriormente creadas. Nos iremos al modo configuración de terminal, una vez dentro de él introducimos el comando ***interface nombredelaintefaz***. Comprobamos que desde el pc1 utilizando ping puede conectarse al pc2, pero no al pc3 ni al pc5 ni al pc7 ni al pc9.

```
SCentral(config)#interface fastethernet0/1
SCentral(config-if)#switchport mode access
SCentral(config-if)#switchport access vlan 1
SCentral(config-if)#exit
SCentral(config)#interface fastethernet0/2
SCentral(config-if)#switchport mode access
SCentral(config-if)#switchport access vlan 1
SCentral(config-if)#exit
SCentral(config)#interface fastethernet0/3
SCentral(config-if)#switchport mode access
SCentral(config-if)#switchport access vlan 2
SCentral(config-if)#exit
SCentral(config)#interface fastethernet0/4
SCentral(config-if)#switchport mode access
SCentral(config-if)#switchport access vlan 2
SCentral(config-if)#exit
SCentral(config)#interface fastethernet0/5
SCentral(config-if)#switchport mode access
SCentral(config-if)#switchport access vlan 3
SCentral(config-if)#exit
SCentral(config)#interface fastethernet0/6
SCentral(config-if)#switchport mode access
SCentral(config-if)#switchport access vlan 3
SCentral(config-if)#exit
SCentral(config)#interface fastethernet0/7
SCentral(config-if)#switchport mode access
SCentral(config-if)#switchport access vlan 4
SCentral(config-if)#exit
SCentral(config)#interface fastethernet0/8
SCentral(config-if)#switchport mode access
SCentral(config-if)#switchport access vlan 4
SCentral(config-if)#exit
SCentral(config)#interface fastethernet0/9
SCentral(config-if)#switchport mode access
SCentral(config-if)#switchport access vlan 5
SCentral(config-if)#exit
SCentral(config)#interface fastethernet0/10
SCentral(config-if)#switchport mode access
SCentral(config-if)#switchport access vlan 5
SCentral(config-if)#exit
```

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time=3ms TTL=128
Reply from 192.168.1.2: bytes=32 time=3ms TTL=128
Reply from 192.168.1.2: bytes=32 time=1ms TTL=128
Reply from 192.168.1.2: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 3ms, Average = 2ms

C:\>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

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

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.1.5

Pinging 192.168.1.5 with 32 bytes of data:

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

Ping statistics for 192.168.1.5:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.1.7

Pinging 192.168.1.7 with 32 bytes of data:

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

Ping statistics for 192.168.1.7:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.1.9

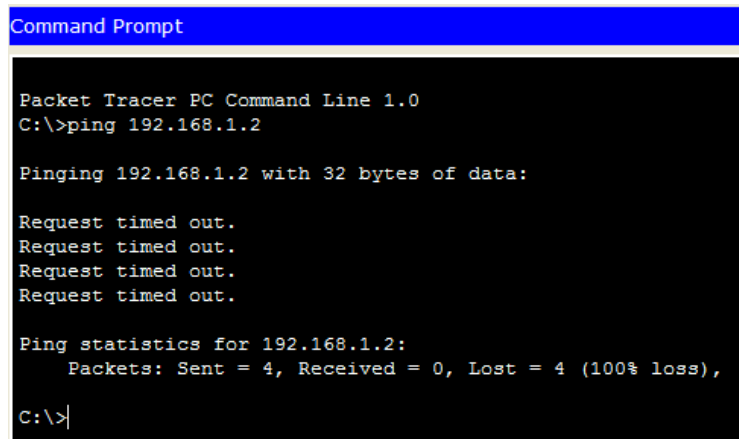
Pinging 192.168.1.9 with 32 bytes of data:

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

Ping statistics for 192.168.1.9:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Inhabilitamos la interfaz 2 y comprueba desde el pc1 que no podemos conectarnos al pc2 utilizando ping.

```
SCentral(config-if)#  
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state  
to administratively down  
  
%LINEPROTO-5-UPDOWN: Line protocol on Interface  
FastEthernet0/2, changed state to down
```



```
Command Prompt  
  
Packet Tracer PC Command Line 1.0  
C:\>ping 192.168.1.2  
  
Pinging 192.168.1.2 with 32 bytes of data:  
  
Request timed out.  
Request timed out.  
Request timed out.  
Request timed out.  
  
Ping statistics for 192.168.1.2:  
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),  
C:\>
```

Forzamos que la interfaz 6 funcione a 10 Mbps

```
SCentral(config)#interface fastethernet0/6  
SCentral(config-if)#speed 10
```

Para la interfaz 10 la dirección MAC será AAAA.BBBB.CCCC (macaddress)

```
SCentral(config)#mac address-table static aaaa.bbbb.cccc  
vlan 5 interface Fa0/10  
SCentral(config)#exit  
SCentral#  
%SYS-5-CONFIG_I: Configured from console by console  
  
SCentral#show mac-address-table  
      Mac Address Table  
-----  
  
Vlan    Mac Address      Type      Ports  
----    -  
5       aaaa.bbbb.cccc   STATIC    Fa0/10  
SCentral#
```