

INSTITUTO TECNOLÓGICO DE SALINA CRUZ

REDES DE COMPUTADORAS

PRACTICA No.3.

UNIDAD 4.

REALIZADA POR: SANCHEZ SANTIAGO NOE

LUGAR Y FECHA: SALINA CRUZ OAXACA A 13 DE MAYO DE 2015.

DOCENTE: ROMÁN NÁJERA SUSANA MÓNICA.

SEMESTRE Y GRUPO: 6E.

CARRERA: ING. EN TECNOLOGÍAS DE LA INFORMACIÓN Y DE LAS COMUNICACIONES

OBJETIVO: se plantea el enfoque en los conceptos protocolos de enrutamiento vector distancia, RIP, VLSM, CIDR y RIPver.2, se inicia con la configuración básica de RIP, direccionamiento con clase y sin clase, VLSM y actividad de resumen de rutas, terminando con configuración de ripV2.

INSTRUCCIONES: a partir de la topología mostrada realizar la tabla de enrutamiento y en base a ello realizar la configuración básica y configuración del protocolo RIPv2.

MATERIALES:

Software packet tracer.

Computadora



	INTERFAZ	DIRECCION IP	MASCARA DE SUBRED	GATEWAY POR DEFECTO
SWB1	fa0/0	172.30.1.1	255.255.0.0	n/a
	Fa1/0	172.31.1.1	255.255.0.0	n/a
	S2/0	209.165.200.228	255.255.255.0	n/a
SWB2	Fa0/0	10.1.0.1	255.0.0.0	n/a
	S2/0	209.165.200.229	255.255.255.0	n/a
	S3/0	209.166.200.233	255.255.255.0	n/a
SWB3	Fa0/0	172.30.100.1	255.255.0.0	n/a
	S2/0	209.165.200.232	255.255.255.0	n/a

```

SWB1
Físico Config CLI
Interfaz de Línea de Comandos IOS
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname SWB1
SWB1(config)#enable password 123
SWB1(config)#banner motd "*** bienvenido joven noe ***"
SWB1(config)#interface fa0/0
SWB1(config-if)#ip address 172.30.1.1 255.255.0.0
SWB1(config-if)#no shut

SWB1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

SWB1(config-if)#exit
SWB1(config)#interface s2/0
SWB1(config-if)#ip address 209.165.200.228 255.255.255.0
SWB1(config-if)#no shut

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
SWB1(config-if)#exit
SWB1(config)#interface fa1/0

```

```

SWB1(config)#interface fa1/0
SWB1(config-if)#ip address 172.31.1.1 255.255.0.0
SWB1(config-if)#no shut

SWB1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
exit
SWB1(config)#

```

```

SWB1>show ip interface brief
Interface IP-Address OK? Method Status Protocol

FastEthernet0/0 172.30.1.1 YES manual up up
FastEthernet1/0 172.31.1.1 YES manual up up
Serial2/0 209.165.200.228 YES manual down down
Serial3/0 unassigned YES unset administratively down down
FastEthernet4/0 unassigned YES unset administratively down down
FastEthernet5/0 unassigned YES unset administratively down down
SWB1>

```

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname SWB2
SWB2(config)#enable password 234
SWB2(config)#bannner motd "*** hola noe ***"
```

```
SWB2(config)#interface fa0/0
SWB2(config-if)#ip address 10.1.0.1 255.0.0.0
SWB2(config-if)#no shut

SWB2(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

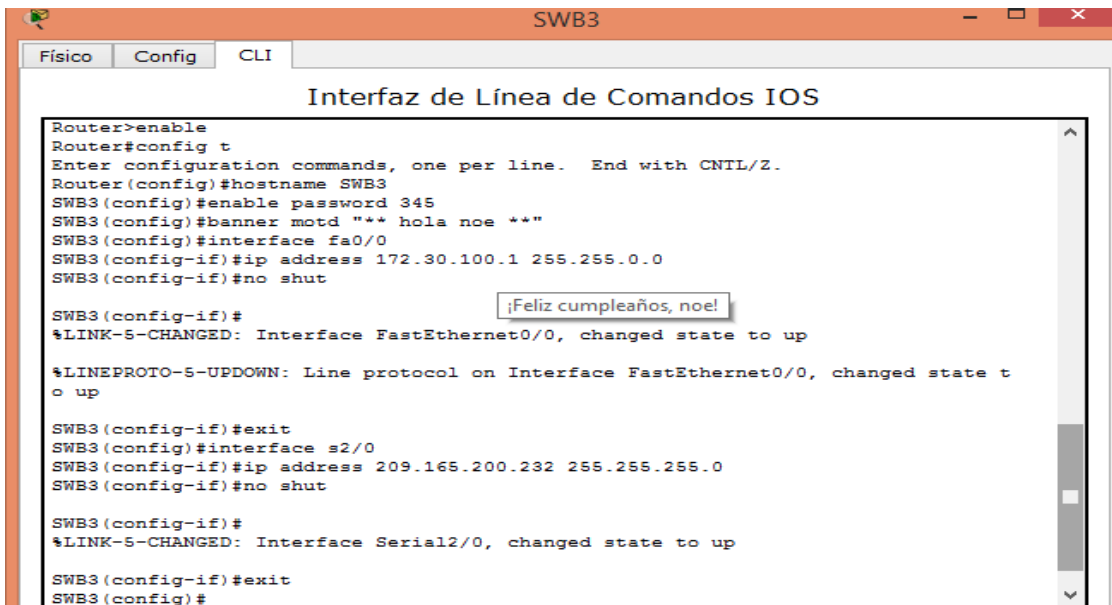
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
¡Feliz cumpleaños, noe!

SWB2(config-if)#exit
SWB2(config)#interface s2/0
SWB2(config-if)#ip address 209.165.200.229 255.255.255.0
SWB2(config-if)#no shut

SWB2(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

SWB2(config-if)#exit
SWB2(config)#interface s3/0
SWB2(config-if)#ip address 209.166.200.233 255.255.255.0
SWB2(config-if)#no shut
```

The screenshot shows a window titled "SWB3" with tabs for "Físico", "Config", and "CLI". The "CLI" tab is active, displaying the "Interfaz de Línea de Comandos IOS". The terminal output shows the configuration of SWB3, including enabling the router, setting the hostname to SWB3, enabling the password 345, setting the banner to "*** hola noe **", and configuring interfaces fa0/0 and s2/0 with IP addresses 172.30.100.1 and 209.165.200.232 respectively. Status messages indicate that the interfaces are up and line protocols are up. A message "¡Feliz cumpleaños, noe!" is also visible.

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname SWB3
SWB3(config)#enable password 345
SWB3(config)#banner motd "*** hola noe **"
SWB3(config)#interface fa0/0
SWB3(config-if)#ip address 172.30.100.1 255.255.0.0
SWB3(config-if)#no shut

SWB3(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

SWB3(config-if)#exit
SWB3(config)#interface s2/0
SWB3(config-if)#ip address 209.165.200.232 255.255.255.0
SWB3(config-if)#no shut

SWB3(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

SWB3(config-if)#exit
SWB3(config)#
```

Configuración de protocolo RIPv2.

```
*** bienvenido joven noe ***

SWB1>enable
Password:
SWB1#config t
Enter configuration commands, one per line.  End with CNTL/Z.
SWB1(config)#router rip
SWB1(config-router)#version 2
SWB1(config-router)#network 172.30.0.0
SWB1(config-router)#network 172.31.0.0
SWB1(config-router)#network 209.165.200.0
SWB1(config-router)#end
SWB1#
%SYS-5-CONFIG_I: Configured from console by console

SWB1#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
SWB1#
```

```
*** hola noe ***

SWB2>enable
Password:
SWB2#config t
Enter configuration commands, one per line.  End with CNTL/Z.
SWB2(config)#router rip
SWB2(config-router)#version 2
SWB2(config-router)#network 10.0.0.0
SWB2(config-router)#network 209.165.200.0
SWB2(config-router)#network 209.166.200.0
SWB2(config-router)#end
SWB2#
%SYS-5-CONFIG_I: Configured from console by console

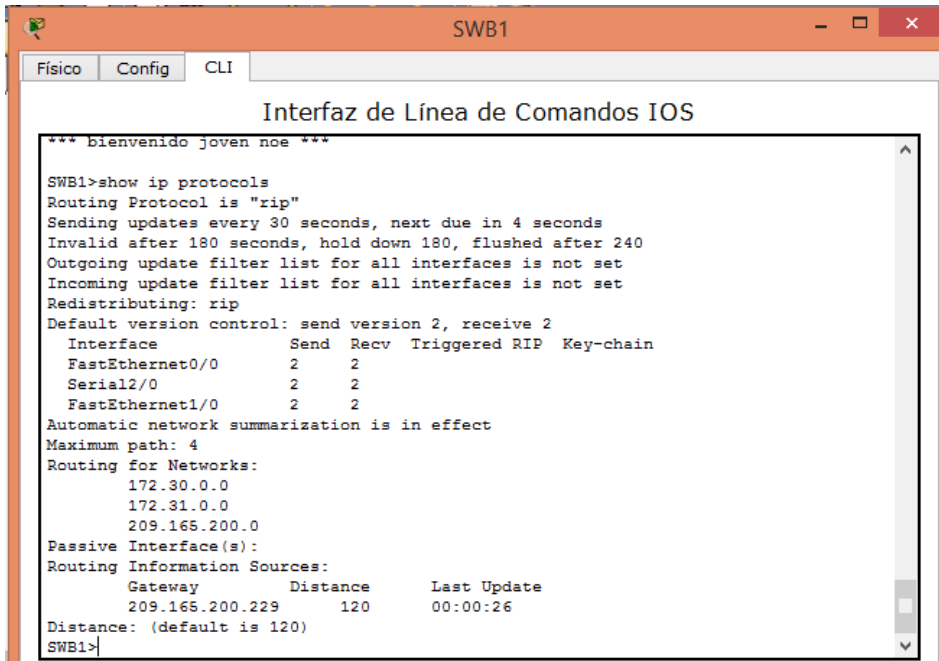
SWB2#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
SWB2#
```

```
** hola noe **

SWB3>enable
Password:
SWB3#config t
Enter configuration commands, one per line.  End with CNTL/Z.
SWB3(config)#router rip
SWB3(config-router)#version 2
SWB3(config-router)#network 172.30.0.0
SWB3(config-router)#network 209.165.200.0
SWB3(config-router)#end
SWB3#
%SYS-5-CONFIG_I: Configured from console by console

SWB3#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
SWB3#
```

Verificación del protocolo configurado.



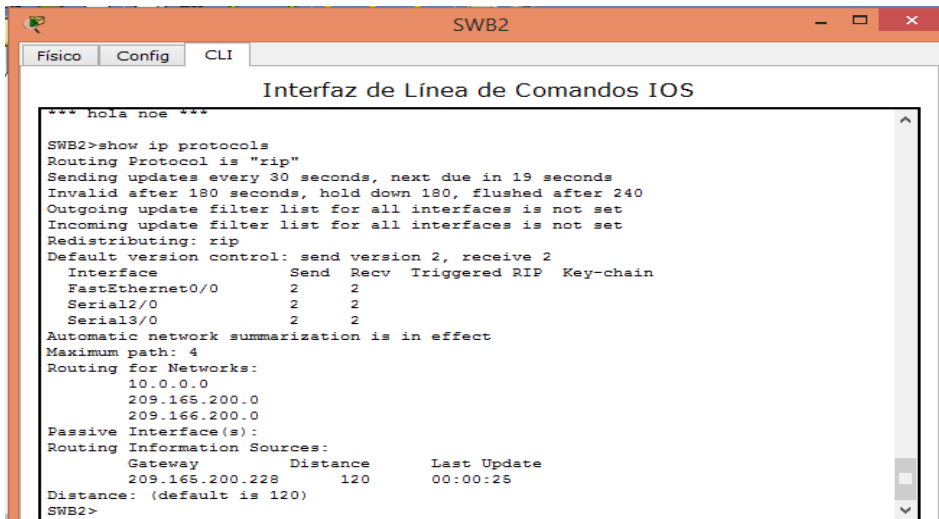
SWB1

Físico Config CLI

Interfaz de Línea de Comandos IOS

```
*** bienvenido joven noe ***

SWB1>show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 4 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
FastEthernet0/0      2     2
Serial2/0            2     2
FastEthernet1/0      2     2
Automatic network summarization is in effect
Maximum path: 4
Routing for Networks:
  172.30.0.0
  172.31.0.0
  209.165.200.0
Passive Interface(s):
Routing Information Sources:
  Gateway         Distance      Last Update
  209.165.200.229    120         00:00:26
Distance: (default is 120)
SWB1>
```



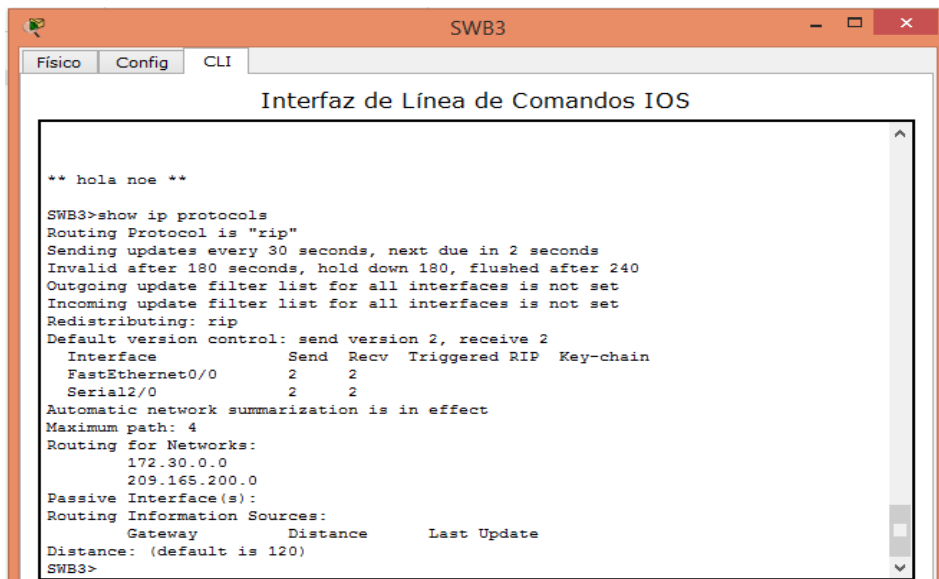
SWB2

Físico Config CLI

Interfaz de Línea de Comandos IOS

```
*** hola noe ***

SWB2>show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 19 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
FastEthernet0/0      2     2
Serial2/0            2     2
Serial3/0            2     2
Automatic network summarization is in effect
Maximum path: 4
Routing for Networks:
  10.0.0.0
  209.165.200.0
  209.166.200.0
Passive Interface(s):
Routing Information Sources:
  Gateway         Distance      Last Update
  209.165.200.228    120         00:00:25
Distance: (default is 120)
SWB2>
```



SWB3

Físico Config CLI

Interfaz de Línea de Comandos IOS

```
** hola noe **

SWB3>show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 2 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
FastEthernet0/0      2     2
Serial2/0            2     2
Automatic network summarization is in effect
Maximum path: 4
Routing for Networks:
  172.30.0.0
  209.165.200.0
Passive Interface(s):
Routing Information Sources:
  Gateway         Distance      Last Update
Distance: (default is 120)
SWB3>
```

Para mostrar las ip conectadas al router haremos uso del comando “show ip route”.

```
SWB1>show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

R    10.0.0.0/8 [120/1] via 209.165.200.229, 00:00:19, Serial2/0
C    172.30.0.0/16 is directly connected, FastEthernet0/0
C    172.31.0.0/16 is directly connected, FastEthernet1/0
C    209.165.200.0/24 is directly connected, Serial2/0
R    209.166.200.0/24 [120/1] via 209.165.200.229, 00:00:19, Serial2/0
SWB1>
```

Para la verificación de la información que envía RIPv2 usaremos “debug ip rip”.

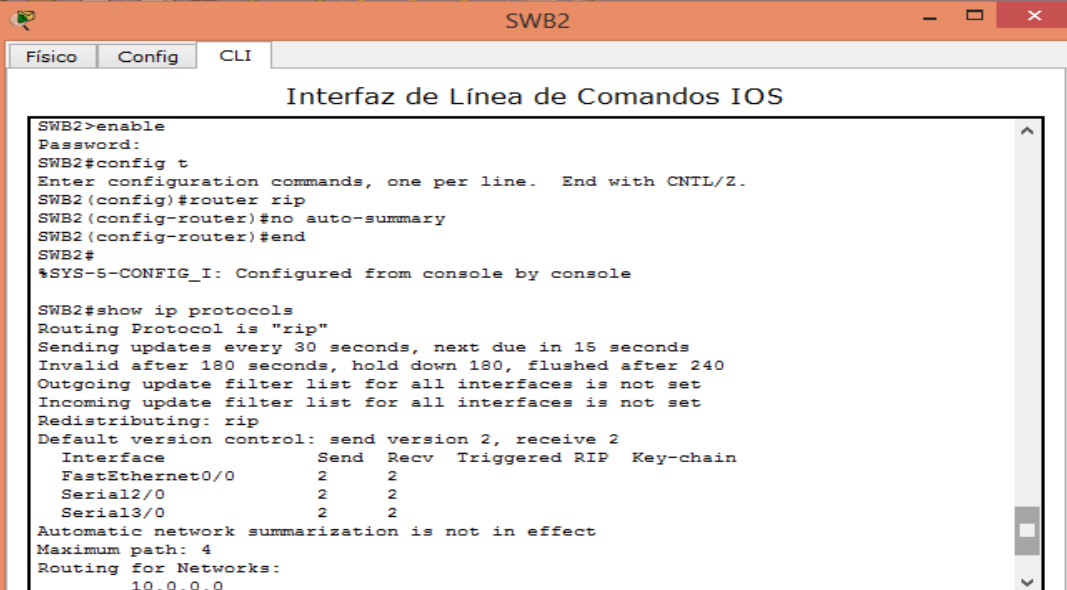


The screenshot shows the CLI of router SWB1. The user has entered 'debug ip rip' and 'enable'. The output shows RIPv2 updates being sent and received on FastEthernet0/0 and FastEthernet1/0. The updates include build update entries for various networks and their metrics.

```
SWB1>
SWB1>debug ip rip
% Invalid input detected at '^' marker.

SWB1>enable
Password:
SWB1#debug ip rip
RIP protocol debugging is on
SWB1#RIP: sending v2 update to 224.0.0.9 via FastEthernet0/0 (172.30.1.1)
RIP: build update entries
  10.0.0.0/8 via 0.0.0.0, metric 2, tag 0
  172.31.0.0/16 via 0.0.0.0, metric 1, tag 0
  209.165.200.0/24 via 0.0.0.0, metric 1, tag 0
  209.166.200.0/24 via 0.0.0.0, metric 2, tag 0
RIP: sending v2 update to 224.0.0.9 via Serial2/0 (209.165.200.228)
RIP: build update entries
  172.30.0.0/16 via 0.0.0.0, metric 1, tag 0
  172.31.0.0/16 via 0.0.0.0, metric 1, tag 0
RIP: sending v2 update to 224.0.0.9 via FastEthernet1/0 (172.31.1.1)
RIP: build update entries
  10.0.0.0/8 via 0.0.0.0, metric 2, tag 0
  172.30.0.0/16 via 0.0.0.0, metric 1, tag 0
  209.165.200.0/24 via 0.0.0.0, metric 1, tag 0
  209.166.200.0/24 via 0.0.0.0, metric 2, tag 0
```

Para realizar la inhabilitación de sumarizacion automática solo usaremos “no auto-summary”.



The screenshot shows the CLI of router SWB2. The user has entered 'enable', 'config t', 'router rip', and 'no auto-summary'. The output shows the configuration and status of RIPv2, including the default version control and the interfaces configured.

```
SWB2>enable
Password:
SWB2#config t
Enter configuration commands, one per line. End with CNTL/Z.
SWB2(config)#router rip
SWB2(config-router)#no auto-summary
SWB2(config-router)#end
SWB2#
%SYS-5-CONFIG_I: Configured from console by console

SWB2#show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 15 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
FastEthernet0/0      2    2
Serial2/0            2    2
Serial3/0            2    2
Automatic network summarization is not in effect
Maximum path: 4
Routing for Networks:
  10.0.0.0
```

```
209.165.200.0
209.165.200.0
209.166.200.0
Passive Interface(s):
Routing Information Sources:
Gateway Distance Last Update
209.165.200.228 120 00:00:23
Distance: (default is 120)
SWB2#
```

Copiar Pegar

Conclusión:

En esta práctica usamos la misma tabla de ruteo de la práctica anterior solo que para este caso fue la configuración del protocolo RIP versión 2, repitiéndose los mismos comandos que se usaron para configurar el protocolo RIP versión 1 con la excepción de que se le indica la versión del protocolo con la instrucción "versión 2".