

INSTITUTO TECNOLÓGICO DE SALINA CRUZ

REDES DE COMPUTADORAS

PRACTICA No.1.

UNIDAD 4.

REALIZADA POR: SANCHEZ SANTIAGO NOE

LUGAR Y FECHA: SALINA CRUZ OAXACA A 12 DE MAYO DE 2015.

DOCENTE: ROMÁN NÁJERA SUSANA MÓNICA.

SEMESTRE Y GRUPO: 6E.

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

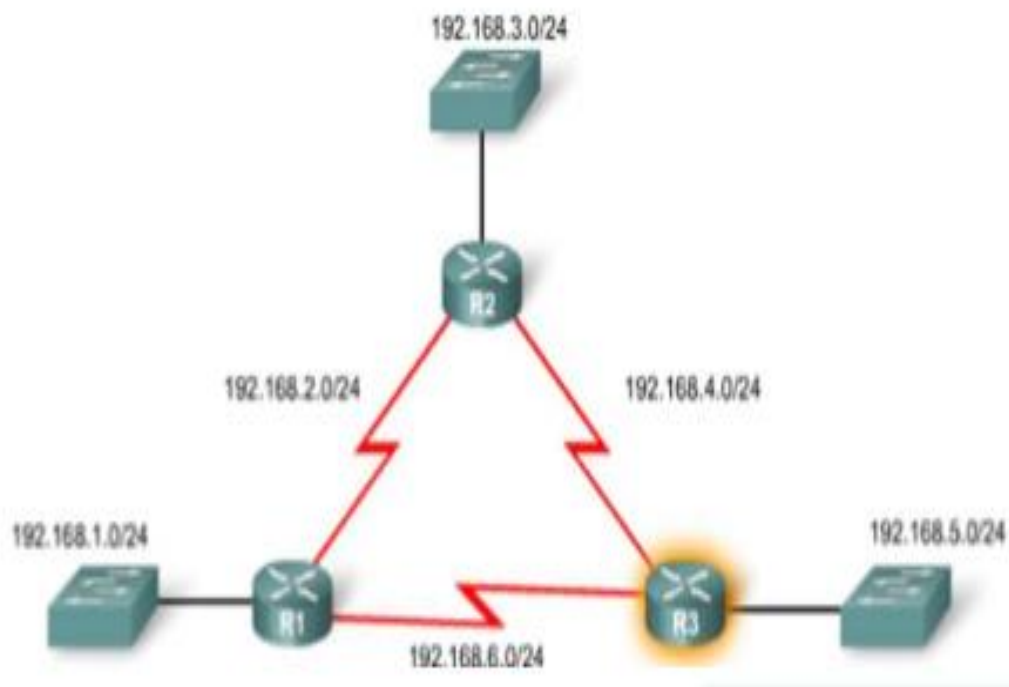
OBJETIVO: se plantea el enfoque en los conceptos protocolos de enrutamiento vector distancia, RIP, VLSM, CIDR y RIPver.2, se inicia con la configuración básica de RIP, direccionamiento con clase y sin clase, VLSM y actividad de resumen de rutas, terminando con configuración de ripV2.

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 RIP.

MATERIALES:

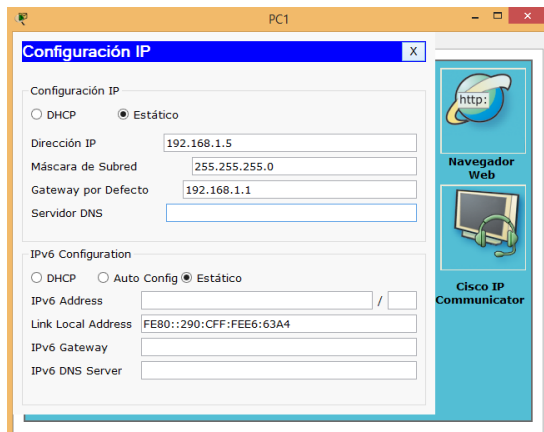
Software packet tracer.

Computadora

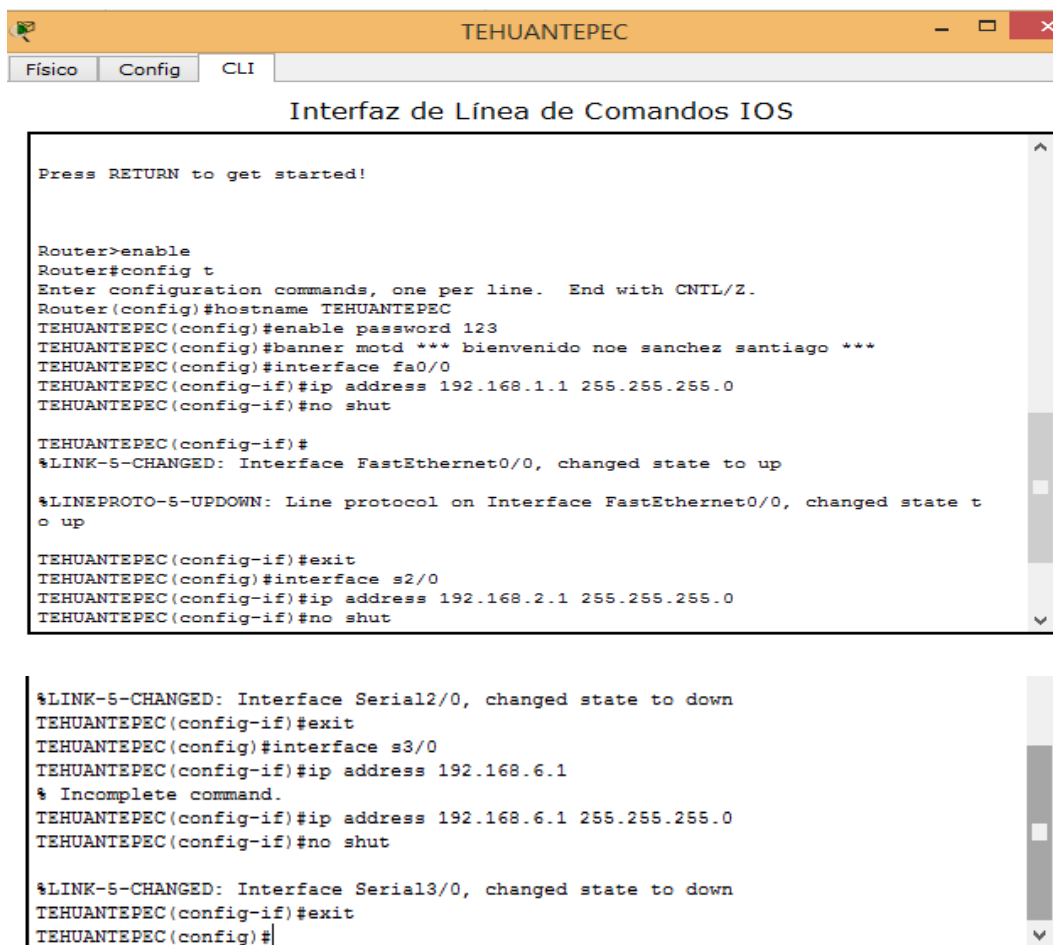


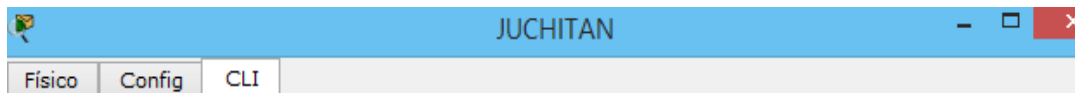
1.- creamos nuestra tabla de ruteo.

	INTERFAZ	DIRECCION IP	MASCARA DE SUBRED	GATEWAY POR DEFECTO
TEHUANTEPEC	fa0/0	192.168.1.1	255.255.255.0	n/a
	S2/0	192.168.2.1	255.255.255.0	n/a
	S3/0	192.168.6.1	255.255.255.0	n/a
JUCHITAN	Fa0/0	192.168.3.1	255.255.255.0	n/a
	S2/0	192.168.2.2	255.255.255.0	n/a
	S3/0	192.168.4.2	255.255.255.0	n/a
SALINA	Fa0/0	192.168.5.1	255.255.255.0	n/a
	S2/0	192.168.4.1	255.255.255.0	n/a
	S3/0	192.168.6.2	255.255.255.0	n/a
Pc1	NIC	192.168.1.5	255.255.0.0	192.168.1.1
Pc2	NIC	192.168.3.5	255.255.255.0	192.168.3.1
Pc3	NIC	192.168.5.5	255.255.255.0	192.168.5.1



2.- Configuración básica de los routers.





Interfaz de Línea de Comandos IOS

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname JUCHITAN
JUCHITAN(config)#enable password 234
JUCHITAN(config)#banner motd *** hola noe sanchez ***
JUCHITAN(config)#interface fa0/0
JUCHITAN(config-if)#ip address 192.168.3.1 255.255.255.0
JUCHITAN(config-if)#no shut

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

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

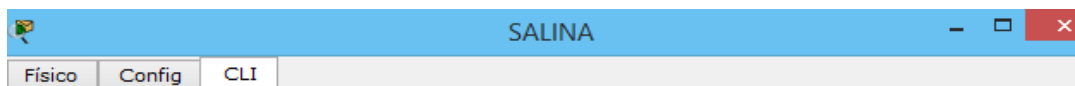
JUCHITAN(config-if)#exit
JUCHITAN(config)#interface s2/0
JUCHITAN(config-if)#ip address 192.168.2.2 255.255.255.0
JUCHITAN(config-if)#no shut

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

JUCHITAN(config-if)#exit
```

```
JUCHITAN(config)#interface s3/0
JUCHITAN(config-if)#ip address 192.168.4.2 255.255.255.0
JUCHITAN(config-if)#no shut

%LINK-5-CHANGED: Interface Serial3/0, changed state to down
JUCHITAN(config-if)#exit
JUCHITAN(config)#
```



Interfaz de Línea de Comandos IOS

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname SALINA
SALINA(config)#enable password 345
SALINA(config)#banner motd *** bienvenido noe sanchez santiago ***
SALINA(config)#interface fa0/0
SALINA(config-if)#ip address 192.168.5.1 255.255.255.0
SALINA(config-if)#no shut

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state t
o up
exit
SALINA(config)#interface s2/0
SALINA(config-if)#ip address 192.168.4.1 255.255.255.0
SALINA(config-if)#no shut

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

SALINA(config-if)#exit
```

```

SALINA(config)#interface s3/0
SALINA(config-if)#ip address 192.168.6.2 255.255.255.0
SALINA(config-if)#no shut

SALINA(config-if)#
%LINK-5-CHANGED: Interface Serial3/0, changed state to up

SALINA(config-if)#exit
SALINA(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

```

3.- verificamos que todas las interfaces estén activas con el comando “show interface brief”.

Interfaz de Línea de Comandos IOS

```

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

TEHUANTEPEC>enable
Password:
TEHUANTEPEC#show interface brief
^
% Invalid input detected at '^' marker.

TEHUANTEPEC#show ip interface brief

```

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/0	192.168.1.1	YES	manual	up	up
FastEthernet1/0	unassigned	YES	unset	administratively down	down
Serial2/0	192.168.2.1	YES	manual	up	up
Serial3/0	192.168.6.1	YES	manual	up	up
FastEthernet4/0	unassigned	YES	unset	administratively down	down
FastEthernet5/0	unassigned	YES	unset	administratively down	down

```

TEHUANTEPEC#

```

```

JUCHITAN>enable
Password:
JUCHITAN#show ip interface brief

```

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/0	192.168.3.1	YES	manual	up	up
FastEthernet1/0	unassigned	YES	unset	administratively down	down
Serial2/0	192.168.2.2	YES	manual	up	up
Serial3/0	192.168.4.2	YES	manual	up	up
FastEthernet4/0	unassigned	YES	unset	administratively down	down
FastEthernet5/0	unassigned	YES	unset	administratively down	down

```

JUCHITAN#

```

```

SALINA>enable
Password:
SALINA#show ip interface brief

```

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/0	192.168.5.1	YES	manual	up	up
FastEthernet1/0	unassigned	YES	unset	administratively down	down
Serial2/0	192.168.4.1	YES	manual	up	up
Serial3/0	192.168.6.2	YES	manual	up	up
FastEthernet4/0	unassigned	YES	unset	administratively down	down
FastEthernet5/0	unassigned	YES	unset	administratively down	down

```

SALINA#

```

4.- configuración del protocolo RIPv1

```

TEHUANTEPEC>enable
Password:
TEHUANTEPEC#config t
Enter configuration commands, one per line. End with CNTL/Z.
TEHUANTEPEC(config)#router rip
TEHUANTEPEC(config-router)#network 192.168.1.0
TEHUANTEPEC(config-router)#network 192.168.2.0
TEHUANTEPEC(config-router)#network 192.168.6.0
TEHUANTEPEC(config-router)#end
TEHUANTEPEC#
%SYS-5-CONFIG_I: Configured from console by console

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

```

Copiar

Pegar

```

JUCHITAN>
JUCHITAN>enable
Password:
JUCHITAN#config t
Enter configuration commands, one per line. End with CNTL/Z.
JUCHITAN(config)#router rip
JUCHITAN(config-router)#network 192.168.2.0
JUCHITAN(config-router)#network 192.168.3.0
JUCHITAN(config-router)#network 192.168.4.0
JUCHITAN(config-router)#end
JUCHITAN#
%SYS-5-CONFIG_I: Configured from console by console

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

```

```

SALINA>enable
Password:
SALINA#config t
Enter configuration commands, one per line. End with CNTL/Z.
SALINA(config)#router rip
SALINA(config-router)#network 192.168.5.0
SALINA(config-router)#network 192.168.4.0
SALINA(config-router)#network 192.168.6.0
SALINA(config-router)#end
SALINA#
%SYS-5-CONFIG_I: Configured from console by console

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

```

5.- realizamos ping entre la pc y el router.

Símbolo del Sistema

```

Packet Tracer PC Command Line 1.0
PC>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=57ms TTL=255
Reply from 192.168.1.1: bytes=32 time=0ms TTL=255
Reply from 192.168.1.1: bytes=32 time=0ms TTL=255
Reply from 192.168.1.1: bytes=32 time=0ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 57ms, Average = 14ms

PC>ping 192.168.3.1

Pinging 192.168.3.1 with 32 bytes of data:

Reply from 192.168.3.1: bytes=32 time=10ms TTL=254
Reply from 192.168.3.1: bytes=32 time=1ms TTL=254
Reply from 192.168.3.1: bytes=32 time=1ms TTL=254
Reply from 192.168.3.1: bytes=32 time=1ms TTL=254

```

```

Ping statistics for 192.168.3.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 10ms, Average = 3ms

PC>ping 192.168.5.1

Pinging 192.168.5.1 with 32 bytes of data:

Reply from 192.168.5.1: bytes=32 time=1ms TTL=254
Reply from 192.168.5.1: bytes=32 time=8ms TTL=254
Reply from 192.168.5.1: bytes=32 time=1ms TTL=254
Reply from 192.168.5.1: bytes=32 time=1ms TTL=254

Ping statistics for 192.168.5.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 8ms, Average = 2ms

PC>

```

Símbolo del Sistema

Packet Tracer PC Command Line 1.0

PC>ping 192.168.3.1

Pinging 192.168.3.1 with 32 bytes of data:

Reply from 192.168.3.1: bytes=32 time=1ms TTL=255

Reply from 192.168.3.1: bytes=32 time=1ms TTL=255

Reply from 192.168.3.1: bytes=32 time=0ms TTL=255

Reply from 192.168.3.1: bytes=32 time=0ms TTL=255

Ping statistics for 192.168.3.1:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 1ms, Average = 0ms

PC>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=2ms TTL=254

Reply from 192.168.1.1: bytes=32 time=2ms TTL=254

Reply from 192.168.1.1: bytes=32 time=1ms TTL=254

Reply from 192.168.1.1: bytes=32 time=1ms TTL=254

Ping statistics for 192.168.1.1:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 1ms, Maximum = 2ms, Average = 1ms

PC>ping 192.168.5.1

Pinging 192.168.5.1 with 32 bytes of data:

Reply from 192.168.5.1: bytes=32 time=1ms TTL=254

Reply from 192.168.5.1: bytes=32 time=1ms TTL=254

Reply from 192.168.5.1: bytes=32 time=1ms TTL=254

Reply from 192.168.5.1: bytes=32 time=1ms TTL=254

Ping statistics for 192.168.5.1:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 1ms, Maximum = 1ms, Average = 1ms

PC>

```
Símbolo del Sistema
Packet Tracer PC Command Line 1.0
PC>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=1ms TTL=254
Reply from 192.168.1.1: bytes=32 time=1ms TTL=254
Reply from 192.168.1.1: bytes=32 time=1ms TTL=254
Reply from 192.168.1.1: bytes=32 time=1ms TTL=254

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 1ms, Average = 1ms

PC>ping 192.168.3.1

Pinging 192.168.3.1 with 32 bytes of data:

Reply from 192.168.3.1: bytes=32 time=1ms TTL=254
Reply from 192.168.3.1: bytes=32 time=1ms TTL=254
Reply from 192.168.3.1: bytes=32 time=10ms TTL=254
Reply from 192.168.3.1: bytes=32 time=1ms TTL=254

Ping statistics for 192.168.3.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
```

```
Ping statistics for 192.168.3.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 10ms, Average = 3ms

PC>ping 192.168.5.1

Pinging 192.168.5.1 with 32 bytes of data:

Reply from 192.168.5.1: bytes=32 time=1ms TTL=255
Reply from 192.168.5.1: bytes=32 time=0ms TTL=255
Reply from 192.168.5.1: bytes=32 time=0ms TTL=255
Reply from 192.168.5.1: bytes=32 time=0ms TTL=255

Ping statistics for 192.168.5.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

PC>
```

6.- verificación y resolución de problemas.

```
SALINA
Físico Config CLI
Interfaz de Línea de Comandos IOS

o up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

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

SALINA>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    192.168.1.0/24 [120/1] via 192.168.6.1, 00:00:07, Serial3/0
R    192.168.2.0/24 [120/1] via 192.168.6.1, 00:00:07, Serial3/0
     [120/1] via 192.168.4.2, 00:00:08, Serial2/0
R    192.168.3.0/24 [120/1] via 192.168.4.2, 00:00:08, Serial2/0
C    192.168.4.0/24 is directly connected, Serial2/0
C    192.168.5.0/24 is directly connected, FastEthernet0/0
C    192.168.6.0/24 is directly connected, Serial3/0
SALINA>
```

Uso del show ip protocols

```
SALINA
Físico Config CLI
Interfaz de Línea de Comandos IOS

SALINA>show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 17 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 1, receive any version
  Interface          Send Recv Triggered RIP Key-chain
FastEthernet0/0      1     2    1
Serial3/0            1     2    1
Serial2/0            1     2    1
Automatic network summarization is in effect
Maximum path: 4
Routing for Networks:
  192.168.4.0
  192.168.5.0
  192.168.6.0
Passive Interface(s):
Routing Information Sources:
  Gateway         Distance      Last Update
  192.168.6.1      120           00:00:01
  192.168.4.2      120           00:00:19
--More--
```

Uso del comando debug ip rip.

```
SALINA
Físico Config CLI
Interfaz de Línea de Comandos IOS

192.168.1.0 in 2 hops
192.168.2.0 in 1 hops
192.168.3.0 in 1 hops
RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0 (192.168.5.1)
RIP: build update entries
  network 192.168.1.0 metric 2
  network 192.168.2.0 metric 2
  network 192.168.3.0 metric 2
  network 192.168.4.0 metric 1
  network 192.168.6.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial3/0 (192.168.6.2)
RIP: build update entries
  network 192.168.3.0 metric 2
  network 192.168.4.0 metric 1
  network 192.168.5.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial2/0 (192.168.4.1)
RIP: build update entries
  network 192.168.1.0 metric 2
  network 192.168.5.0 metric 1
  network 192.168.6.0 metric 1
RIP: received v1 update from 192.168.6.1 on Serial3/0
  192.168.1.0 in 1 hops
  192.168.2.0 in 1 hops
  192.168.3.0 in 2 hops
SALINA#
```

Resultado/Conclusión:

Para el desarrollo de esta práctica, lo primero que hicimos fue realizar nuestra tabla de enrutamiento luego realizamos la configuración básica como asignación de nombre contraseña y banner a cada router que tenemos en nuestra topología, una vez terminado lo anterior, corresponde el levantamiento de puertos y seriales considerando nuestra tabla de ruteo, después de esta acción podemos visualizar lo que hemos levantado con el comando “show ip route” posteriormente hacemos la configuración del protocolo a implementar en el router en esta ocasión se realizó del protocolo RIPv1 protocolo de enrutamiento con clase al termino podemos hacer ping de una maquina a cualquier router para visualizar si nuestra configuración tiene éxito. g