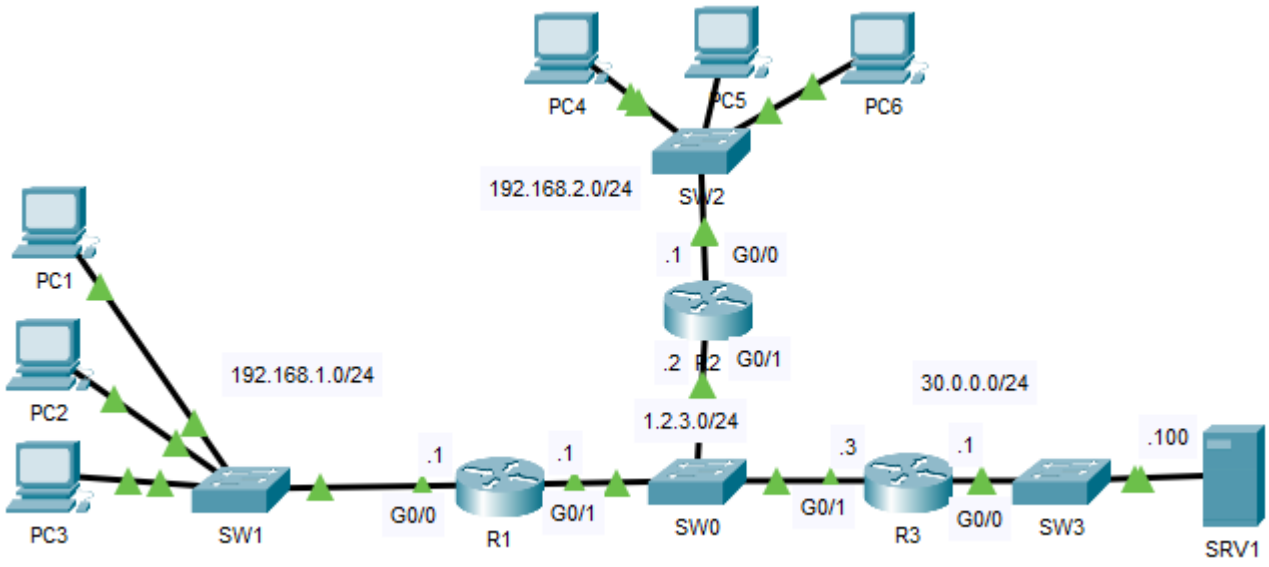
ACTIVITY 43: Review Configuration Lab 2



1. Configure RIP between R1, R2, and R3, advertising all connected networks.

-Use RIP version 2 and Disable auto-summary:

```
R1(config)#router rip
R1(config-router)#network 192.168.1.0
R1(config-router)#network 1.2.3.0
R1(config-router)#version 2
R1(config-router)#no auto-summary

R2(config)#router rip
R2(config-router)#network 192.168.2.0
R2(config-router)#network 1.2.3.0
R2(config-router)#version 2
R2(config-router)#no auto-summary

R3(config)#router rip
R3(config-router)#network 30.0.0.0
R3(config-router)#network 1.2.3.0
R3(config-router)#version 2
R3(config-router)#no auto-summary
```

2. Configure R1, R2, and R3 to send Syslog messages to SRV1

```
R1(config)#logging 30.0.0.100
R2(config)#logging 30.0.0.100
R3(config)#logging 30.0.0.100
```

3. Configure PAT on R1 and R2 to translate their inside hosts to their G0/1 interface

```
R1(config)#int g0/0
R1(config-if)#ip nat inside
R1(config-if)#int g0/1
R1(config-if)#ip nat outside
R1(config-if)#exit
R1(config)#access-list 1 permit 192.168.1.0 0.0.0.255
R1(config)#ip nat inside source list 1 interface g0/1 overload
```

```
R2(config)#int g0/0
R2(config-if)#ip nat inside
R2(config-if)#int g0/1
R2(config-if)#ip nat outside
R2(config-if)#access-list 1 permit 192.168.2.0 0.0.0.255
R2(config)#ip nat inside source list 1 interface g0/1
```

4. Configure R1 as a DHCP server with two pools:

1pool:

Network: 192.168.1.0/24
Default gateway: 192.168.1.1
DNS server: 30.0.0.100
Excluded range: 192.168.1.1 - 192.168.1.10

2pool:

Network: 192.168.2.0/24
Default gateway: 192.168.2.1
DNS server: 30.0.0.100
Excluded range: 192.168.2.1 - 192.168.2.10

```
R1(config)#ip dhcp pool 1pool
R1(dhcp-config)#network 192.168.1.0 255.255.255.0
R1(dhcp-config)#default-router 192.168.1.1
R1(dhcp-config)#dns-server 30.0.0.100
R1(dhcp-config)#ip dhcp excluded-address 192.168.1.1 192.168.1.10
R1(config)#
R1(config)#ip dhcp pool 2pool
R1(dhcp-config)#network 192.168.2.0 255.255.255.0
R1(dhcp-config)#default-router 192.168.2.1
R1(dhcp-config)#dns-server 30.0.0.100
R1(dhcp-config)#ip dhcp excluded-address 192.168.2.1 192.168.2.10
```

5. Configure R2 to forward DHCP requests to R1

```
R2(config)#int g0/0
R2(config-if)#ip helper-address 1.2.3.1
```

6. Configure R1 for SSH version 2 access on the VTY lines:

Username: cisco, password: ccna
Domain name: cisco.com
Key modulus: 1024 bit

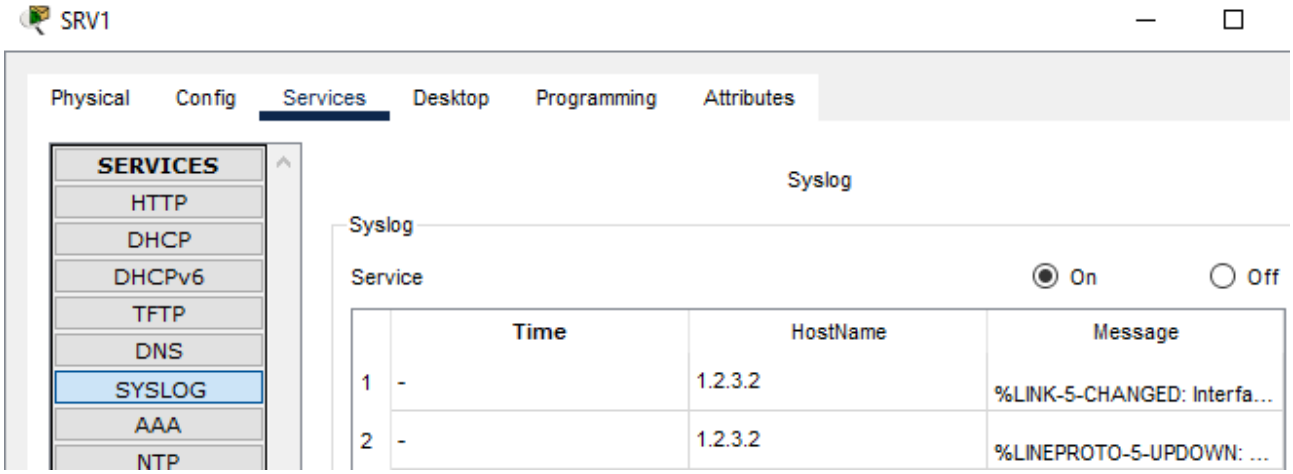
```
R1(config)#username cisco password ccna
R1(config)#ip domain-name cisco.com
R1(config)#crypto key generate rsa
The name for the keys will be: R1.cisco.com
Choose the size of the key modulus in the range of 360 to 4096 for your
  General Purpose Keys. Choosing a key modulus greater than 512 may take
  a few minutes.

How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]
```

```
R1(config)#line vty 0 15
R1(config-line)#login local
R1(config-line)#transport input ssh
R1(config-line)#ip ssh version 2
```

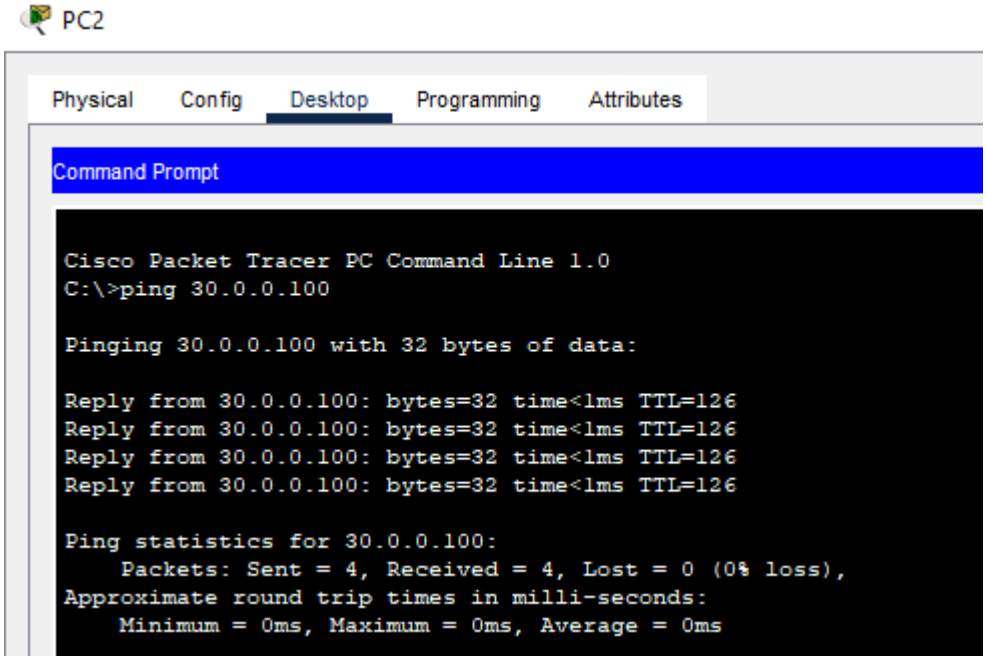
Now let's try:

- The SYSLOG messages :

```
R2(config)#int g0/0
R2(config-if)#shut

R2(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to down

R2(config-if)#no shut

R2(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up
```



- The NAT translations:




```
R1#sh ip nat translations
Pro  Inside global     Inside local       Outside local      Outside global
icmp 1.2.3.1:1         192.168.1.2:1      30.0.0.100:1       30.0.0.100:1
icmp 1.2.3.1:2         192.168.1.2:2      30.0.0.100:2       30.0.0.100:2
icmp 1.2.3.1:3         192.168.1.2:3      30.0.0.100:3       30.0.0.100:3
icmp 1.2.3.1:4         192.168.1.2:4      30.0.0.100:4       30.0.0.100:4
```

- The DHCP:

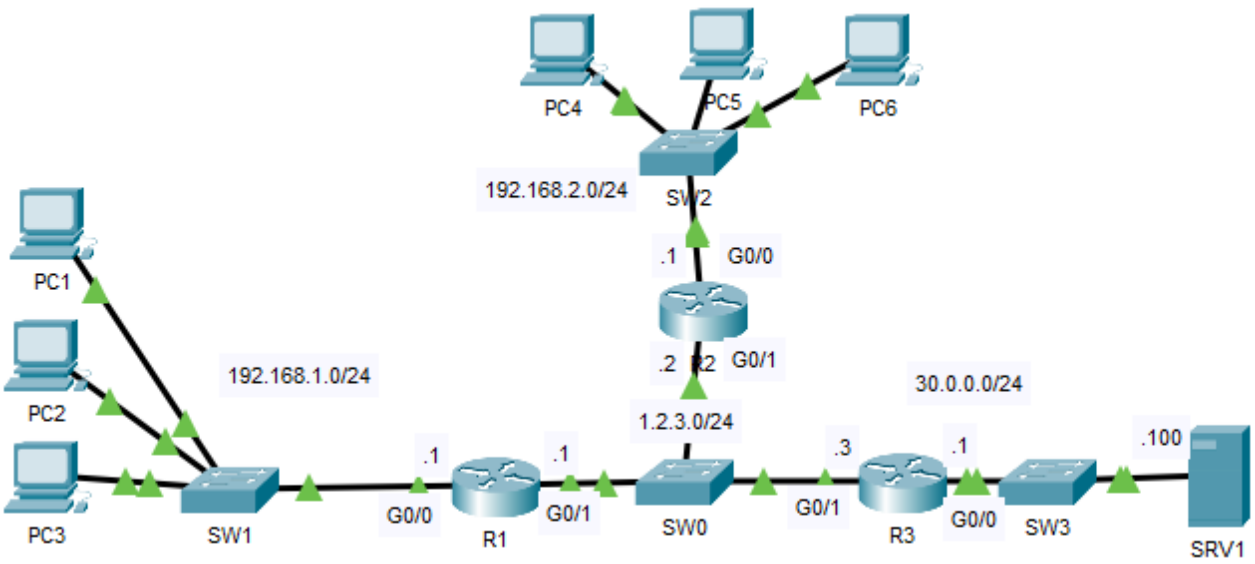
```
C:\>ipconfig /release

   IP Address.......................: 0.0.0.0
   Subnet Mask......................: 0.0.0.0
   Default Gateway..................: 0.0.0.0
   DNS Server.......................: 0.0.0.0

C:\>ipconfig /renew

   IP Address.......................: 192.168.1.11
   Subnet Mask......................: 255.255.255.0
   Default Gateway..................: 192.168.1.1
   DNS Server.......................: 30.0.0.100
```

```
C:\>ipconfig /release

   IP Address.......................: 0.0.0.0
   Subnet Mask......................: 0.0.0.0
   Default Gateway..................: 0.0.0.0
   DNS Server.......................: 0.0.0.0

C:\>ipconfig /renew

   IP Address.......................: 192.168.2.11
   Subnet Mask......................: 255.255.255.0
   Default Gateway..................: 192.168.2.1
   DNS Server.......................: 30.0.0.100
```

- The SSH on R1:

```
C:\>ssh -l cisco 192.168.1.1

Password:



R1>
```

ACTIVITY 44: Review Troubleshooting Lab 2



Troubleshoot and fix the following network problems (in order):

1. R2 and R3 aren't receiving a RIP route to 192.168.1.0/24 from R1.

On R2 and R3:

```
Gateway of last resort is not set

     1.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       1.2.3.0/24 is directly connected, GigabitEthernet0/1
L       1.2.3.2/32 is directly connected, GigabitEthernet0/1
     30.0.0.0/24 is subnetted, 1 subnets
R       30.0.0.0/24 [120/1] via 1.2.3.3, 00:00:06, GigabitEthernet0/1
     192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.2.0/24 is directly connected, GigabitEthernet0/0
L       192.168.2.1/32 is directly connected, GigabitEthernet0/0

R2#
```

```
Gateway of last resort is not set

     1.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       1.2.3.0/24 is directly connected, GigabitEthernet0/1
L       1.2.3.3/32 is directly connected, GigabitEthernet0/1
     30.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       30.0.0.0/24 is directly connected, GigabitEthernet0/0
L       30.0.0.1/32 is directly connected, GigabitEthernet0/0
R    192.168.2.0/24 [120/1] via 1.2.3.2, 00:00:26, GigabitEthernet0/1

R3#
```

- Let's see the running config file on R1:

```
router rip
 version 2
 passive-interface GigabitEthernet0/1
 network 1.0.0.0
 network 192.168.1.0
 no auto-summary
!
```

As we see there, the passive-interface should be g0/0 not g0/1, let's change it:

```
R1(config)#router rip
R1(config-router)#no passive-interface g0/1
R1(config-router)#passive-interface g0/0
```

Let's check the result on R2 and R3:

```
Gateway of last resort is not set

     1.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       1.2.3.0/24 is directly connected, GigabitEthernet0/1
L       1.2.3.2/32 is directly connected, GigabitEthernet0/1
     30.0.0.0/24 is subnetted, 1 subnets
R       30.0.0.0/24 [120/1] via 1.2.3.3, 00:00:12, GigabitEthernet0/1
R    192.168.1.0/24 [120/1] via 1.2.3.1, 00:00:06, GigabitEthernet0/1
     192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.2.0/24 is directly connected, GigabitEthernet0/0
L       192.168.2.1/32 is directly connected, GigabitEthernet0/0

R2#
```

```
Gateway of last resort is not set

     1.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       1.2.3.0/24 is directly connected, GigabitEthernet0/1
L       1.2.3.3/32 is directly connected, GigabitEthernet0/1
     30.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       30.0.0.0/24 is directly connected, GigabitEthernet0/0
L       30.0.0.1/32 is directly connected, GigabitEthernet0/0
R    192.168.1.0/24 [120/1] via 1.2.3.1, 00:00:03, GigabitEthernet0/1
R    192.168.2.0/24 [120/1] via 1.2.3.2, 00:00:18, GigabitEthernet0/1

R3#
```

2. Hosts in the 192.168.2.0/24 network aren't receiving IP addresses via DHCP.

Let's check R1's running-config file:

```
ip dhcp pool 2pool
 network 192.168.2.0 255.255.255.0
 default-router 192.168.2.1
 dns-server 30.0.0.100
!
```

Everything is normal, so let's check R2's running-config file:

```
interface GigabitEthernet0/0
 ip address 192.168.2.1 255.255.255.0
 ip nat inside
 duplex auto
 speed auto
!
```

There is no helper-address, let's set it:

```
R2(config)#int g0/0
R2(config-if)#ip helper-address 1.2.3.1
```

Now, let's check on PC6:

```
C:\>ipconfig /release

   IP Address.......................: 0.0.0.0
   Subnet Mask......................: 0.0.0.0
   Default Gateway..................: 0.0.0.0
   DNS Server.......................: 0.0.0.0

C:\>ipconfig /renew

   IP Address.......................: 192.168.2.11
   Subnet Mask......................: 255.255.255.0
   Default Gateway..................: 192.168.2.1
   DNS Server.......................: 30.0.0.100
```

3. PAT isn't functioning on R1.

Let's check the running-config on R1:

```
ip nat inside source list 2 interface GigabitEthernet0/1 overload
ip classless
!
ip flow-export version 9
!
!
access-list 1 permit 192.168.1.0 0.0.0.255
!
```

As we see, it should be list 1 not list 2 on nat, let;'s update it:

```
R1(config)#no ip nat inside source list 2 interface GigabitEthernet0/1 overload
R1(config)#ip nat inside source list 1 interface GigabitEthernet0/1 overload
```

Let's check it on R1 if there is a translation:

```
C:\>ping 30.0.0.100

Pinging 30.0.0.100 with 32 bytes of data:

Request timed out.
Reply from 30.0.0.100: bytes=32 time<1ms TTL=126
Reply from 30.0.0.100: bytes=32 time<1ms TTL=126
Reply from 30.0.0.100: bytes=32 time<1ms TTL=126

Ping statistics for 30.0.0.100:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
R1#sh ip nat translations
Pro  Inside global     Inside local       Outside local      Outside global
icmp 1.2.3.1:1         192.168.1.13:1     30.0.0.100:1       30.0.0.100:1
icmp 1.2.3.1:2         192.168.1.13:2     30.0.0.100:2       30.0.0.100:2
icmp 1.2.3.1:3         192.168.1.13:3     30.0.0.100:3       30.0.0.100:3
icmp 1.2.3.1:4         192.168.1.13:4     30.0.0.100:4       30.0.0.100:4
```

4. Hosts in the 192.168.1.0/24 network aren't receiving DNS server information via DHCP.

Let's check the running-config on R1:

```
ip dhcp pool 1pool
 network 192.168.1.0 255.255.255.0
 default-router 192.168.1.1
```

Let's add a DNS server:

```
R1(config)#ip dhcp pool 1pool
R1(dhcp-config)#dns-server 30.0.0.100
```

Let's check on PC1:

```
C:\>ipconfig /release

   IP Address.......................: 0.0.0.0
   Subnet Mask......................: 0.0.0.0
   Default Gateway..................: 0.0.0.0
   DNS Server.......................: 0.0.0.0

C:\>ipconfig /renew

   IP Address.......................: 192.168.1.13
   Subnet Mask......................: 255.255.255.0
   Default Gateway..................: 192.168.1.1
   DNS Server.......................: 30.0.0.100
```

5. R1 cannot be connected to via SSH.

Let's check the runnning-config on R1 :

```
line vty 0 4
 login local
 transport input telnet
line vty 5 15
 login local
 transport input telnet
!
```

As we see it, the transport input should be ssh not telnet, let's update it :

```
R1(config)#line vty 0 15
R1(config-line)#transport input ssh
```

Now, let's check on PC1:

```
C:\>ssh -l cisco 192.168.1.1

Password:



R1>
```