



# Instituto Politécnico Nacional



## Escuela Superior de Cómputo

### 3\_6 Práctica registros DNS en Packet Tracer

Materia:

Administración de servicios en red

Grupo:

4CV13

Profesor:

Henestrosa Carrasco Leticia

Integrantes: (*Equipo 1*)

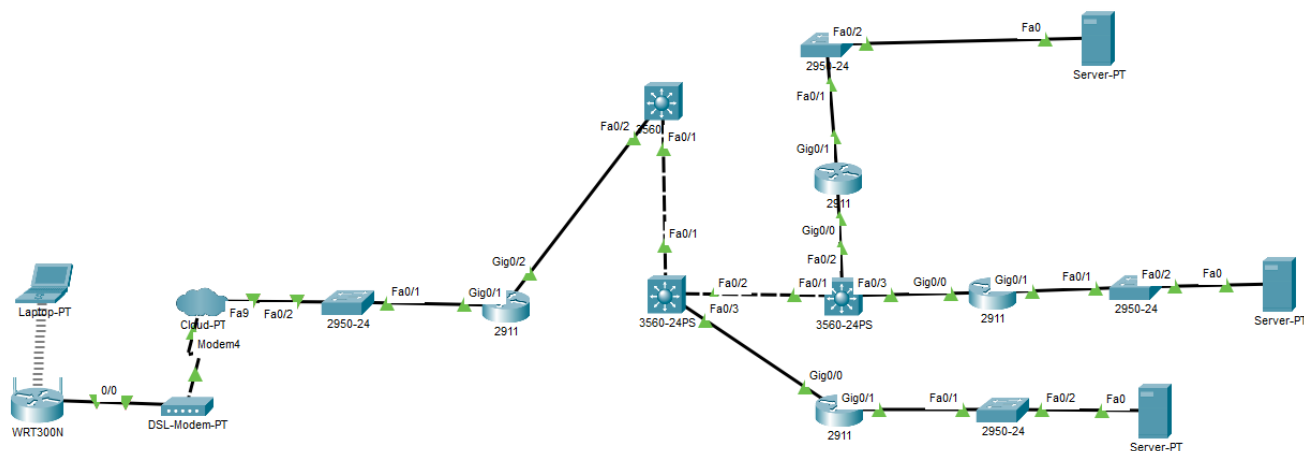
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Castro Cruces Jorge Eduardo  
López Mares Irene Elizabeth  
Pedroza García Rodolfo

Fecha:

Miércoles, 8 de junio de 2022

# Desarrollo

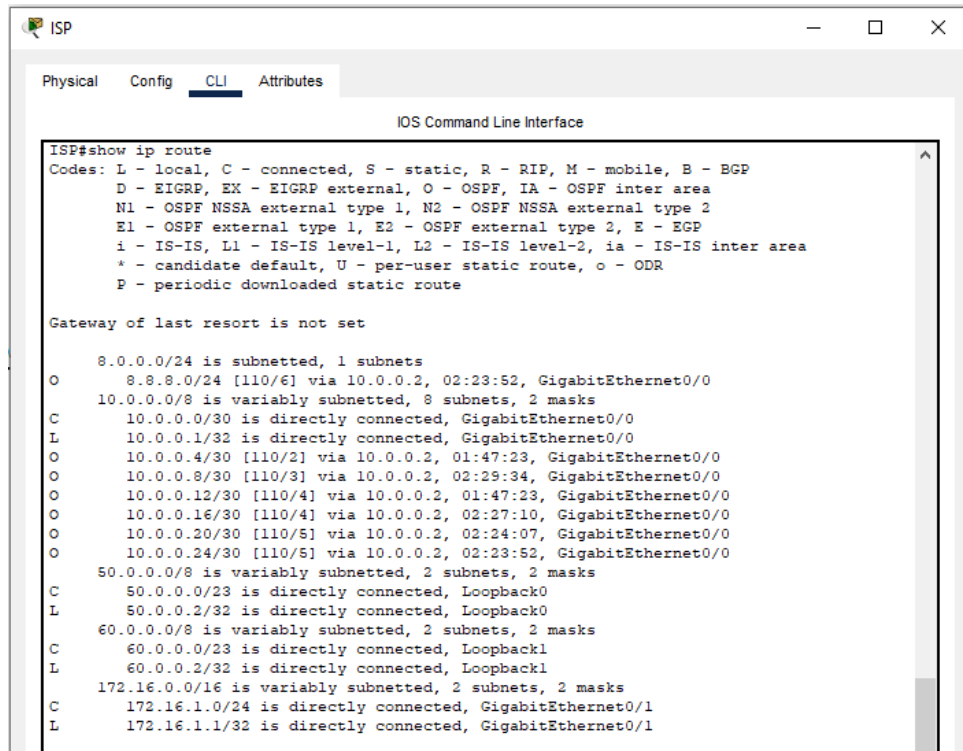
**Paso 1.** Configurar la topología con los dispositivos que se muestran en la imagen, aplicar el direccionamiento que se observa en ella.



**Topología**

Dispositivo	Interfaz	Dirección IP	Máscara	Gateway
Router ISP	Gi0/1	172.16.1.1	255.255.255.0	
	Gi0/2	10.0.0.5	255.255.255.252	
Router ESCOM	Gi0/0	10.0.0.18	255.255.255.252	
	Gi0/1	60.0.0.1	255.255.254.0	
Router CIC	Gi0/0	10.0.0.22	255.255.255.252	
	Gi0/1	50.0.0.1	255.255.254.0	
Router GOOGLE	Gi0/0	10.0.0.26	255.255.255.252	
	Gi0/1	8.8.8.1	255.255.255.0	
Switch multicapa 1	Fa0/1	10.0.0.9	255.255.255.252	
	Fa0/2	10.0.0.6	255.255.255.252	
Switch multicapa 2	Fa0/1	10.0.0.10	255.255.255.252	
	Fa0/2	10.0.0.13	255.255.255.252	
	Fa0/3	10.0.0.17	255.255.255.252	
Switch multicapa 4	Fa0/1	10.0.0.14	255.255.255.252	
	Fa0/2	10.0.0.25	255.255.255.252	
	Fa0/3	10.0.0.21	255.255.255.252	
Servidor DNS_publico	Fa0	8.8.8.8	255.0.0.0	8.8.8.1
Servidor CIC	Fa0	50.0.0.2	255.255.254.0	50.0.0.1
Servidor ESCOM	Fa0	50.0.0.2	255.255.254.0	60.0.0.1
Router inalámbrico	LAN	192.168.0.1	255.255.255.0	
Laptop	Wireless0	192.168.0.100	255.255.255.0	192.168.0.1

## Paso 2. Protocolo de enrutamiento OSPF o RIPv2.



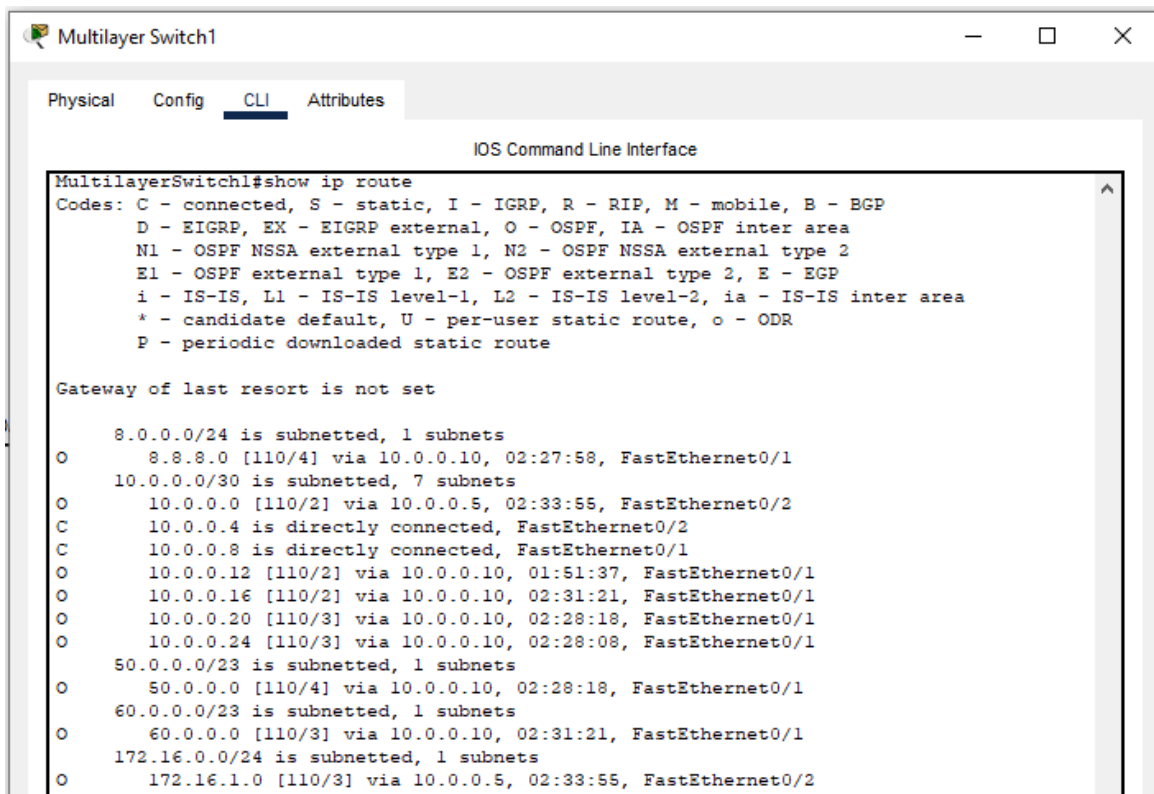
```
ISP
Physical Config CLI Attributes
IOS Command Line Interface

ISP#show ip route
Codes: L - local, C - connected, S - static, 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

      8.0.0.0/24 is subnetted, 1 subnets
O       8.8.8.0/24 [110/6] via 10.0.0.2, 02:23:52, GigabitEthernet0/0
      10.0.0.0/8 is variably subnetted, 8 subnets, 2 masks
C       10.0.0.0/30 is directly connected, GigabitEthernet0/0
L       10.0.0.1/32 is directly connected, GigabitEthernet0/0
O       10.0.0.4/30 [110/2] via 10.0.0.2, 01:47:23, GigabitEthernet0/0
O       10.0.0.8/30 [110/3] via 10.0.0.2, 02:29:34, GigabitEthernet0/0
O       10.0.0.12/30 [110/4] via 10.0.0.2, 01:47:23, GigabitEthernet0/0
O       10.0.0.16/30 [110/4] via 10.0.0.2, 02:27:10, GigabitEthernet0/0
O       10.0.0.20/30 [110/5] via 10.0.0.2, 02:24:07, GigabitEthernet0/0
O       10.0.0.24/30 [110/5] via 10.0.0.2, 02:23:52, GigabitEthernet0/0
      50.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       50.0.0.0/23 is directly connected, Loopback0
L       50.0.0.2/32 is directly connected, Loopback0
      60.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       60.0.0.0/23 is directly connected, Loopback1
L       60.0.0.2/32 is directly connected, Loopback1
      172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.16.1.0/24 is directly connected, GigabitEthernet0/1
L       172.16.1.1/32 is directly connected, GigabitEthernet0/1
```

Router ISP



```
Multilayer Switch1
Physical Config CLI Attributes
IOS Command Line Interface

MultilayerSwitch1#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

      8.0.0.0/24 is subnetted, 1 subnets
O       8.8.8.0 [110/4] via 10.0.0.10, 02:27:58, FastEthernet0/1
      10.0.0.0/30 is subnetted, 7 subnets
O       10.0.0.0 [110/2] via 10.0.0.5, 02:33:55, FastEthernet0/2
C       10.0.0.4 is directly connected, FastEthernet0/2
C       10.0.0.8 is directly connected, FastEthernet0/1
O       10.0.0.12 [110/2] via 10.0.0.10, 01:51:37, FastEthernet0/1
O       10.0.0.16 [110/2] via 10.0.0.10, 02:31:21, FastEthernet0/1
O       10.0.0.20 [110/3] via 10.0.0.10, 02:28:18, FastEthernet0/1
O       10.0.0.24 [110/3] via 10.0.0.10, 02:28:08, FastEthernet0/1
      50.0.0.0/23 is subnetted, 1 subnets
O       50.0.0.0 [110/4] via 10.0.0.10, 02:28:18, FastEthernet0/1
      60.0.0.0/23 is subnetted, 1 subnets
O       60.0.0.0 [110/3] via 10.0.0.10, 02:31:21, FastEthernet0/1
      172.16.0.0/24 is subnetted, 1 subnets
O       172.16.1.0 [110/3] via 10.0.0.5, 02:33:55, FastEthernet0/2
```

Switch multicapa 1

Multilayer Switch2

Physical Config CLI Attributes

IOS Command Line Interface

```
MultilayerSwitch2#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

      8.0.0.0/24 is subnetted, 1 subnets
O       8.8.8.0 [110/3] via 10.0.0.14, 02:29:09, FastEthernet0/2
10.0.0.0/30 is subnetted, 7 subnets
O       10.0.0.0 [110/3] via 10.0.0.9, 01:52:30, FastEthernet0/1
O       10.0.0.4 [110/2] via 10.0.0.9, 01:52:30, FastEthernet0/1
C       10.0.0.8 is directly connected, FastEthernet0/1
C       10.0.0.12 is directly connected, FastEthernet0/2
C       10.0.0.16 is directly connected, FastEthernet0/3
O       10.0.0.20 [110/2] via 10.0.0.14, 02:29:29, FastEthernet0/2
O       10.0.0.24 [110/2] via 10.0.0.14, 02:29:09, FastEthernet0/2
50.0.0.0/23 is subnetted, 1 subnets
O       50.0.0.0 [110/3] via 10.0.0.14, 02:29:19, FastEthernet0/2
60.0.0.0/23 is subnetted, 1 subnets
O       60.0.0.0 [110/2] via 10.0.0.18, 02:32:24, FastEthernet0/3
172.16.0.0/24 is subnetted, 1 subnets
O       172.16.1.0 [110/4] via 10.0.0.9, 01:52:30, FastEthernet0/1
```

Switch multicapa 2

ESCOM

Physical Config CLI Attributes

IOS Command Line Interface

```
ESCOM#show ip route
Codes: L - local, C - connected, S - static, 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

      8.0.0.0/24 is subnetted, 1 subnets
O       8.8.8.0/24 [110/4] via 10.0.0.17, 02:30:49, GigabitEthernet0/0
10.0.0.0/8 is variably subnetted, 8 subnets, 2 masks
O       10.0.0.0/30 [110/4] via 10.0.0.17, 01:54:18, GigabitEthernet0/0
O       10.0.0.4/30 [110/3] via 10.0.0.17, 01:54:18, GigabitEthernet0/0
O       10.0.0.8/30 [110/2] via 10.0.0.17, 02:34:15, GigabitEthernet0/0
O       10.0.0.12/30 [110/2] via 10.0.0.17, 01:54:28, GigabitEthernet0/0
C       10.0.0.16/30 is directly connected, GigabitEthernet0/0
L       10.0.0.18/32 is directly connected, GigabitEthernet0/0
O       10.0.0.20/30 [110/3] via 10.0.0.17, 02:31:09, GigabitEthernet0/0
O       10.0.0.24/30 [110/3] via 10.0.0.17, 02:30:59, GigabitEthernet0/0
50.0.0.0/23 is subnetted, 1 subnets
O       50.0.0.0/23 [110/4] via 10.0.0.17, 02:31:09, GigabitEthernet0/0
60.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       60.0.0.0/23 is directly connected, GigabitEthernet0/1
L       60.0.0.1/32 is directly connected, GigabitEthernet0/1
172.16.0.0/24 is subnetted, 1 subnets
O       172.16.1.0/24 [110/5] via 10.0.0.17, 01:54:18, GigabitEthernet0/0
```

Router ESCOM

```
Multilayer Switch4
Physical Config CLI Attributes
IOS Command Line Interface
MultilayerSwitch4#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

  8.0.0.0/24 is subnetted, 1 subnets
O    8.8.8.0 [110/2] via 10.0.0.26, 02:33:53, FastEthernet0/2
 10.0.0.0/30 is subnetted, 7 subnets
O    10.0.0.0 [110/4] via 10.0.0.13, 01:57:14, FastEthernet0/1
O    10.0.0.4 [110/3] via 10.0.0.13, 01:57:14, FastEthernet0/1
O    10.0.0.8 [110/2] via 10.0.0.13, 02:34:23, FastEthernet0/1
C    10.0.0.12 is directly connected, FastEthernet0/1
O    10.0.0.16 [110/2] via 10.0.0.13, 02:34:23, FastEthernet0/1
C    10.0.0.20 is directly connected, FastEthernet0/3
C    10.0.0.24 is directly connected, FastEthernet0/2
 50.0.0.0/23 is subnetted, 1 subnets
O    50.0.0.0 [110/2] via 10.0.0.22, 02:34:13, FastEthernet0/3
 60.0.0.0/23 is subnetted, 1 subnets
```

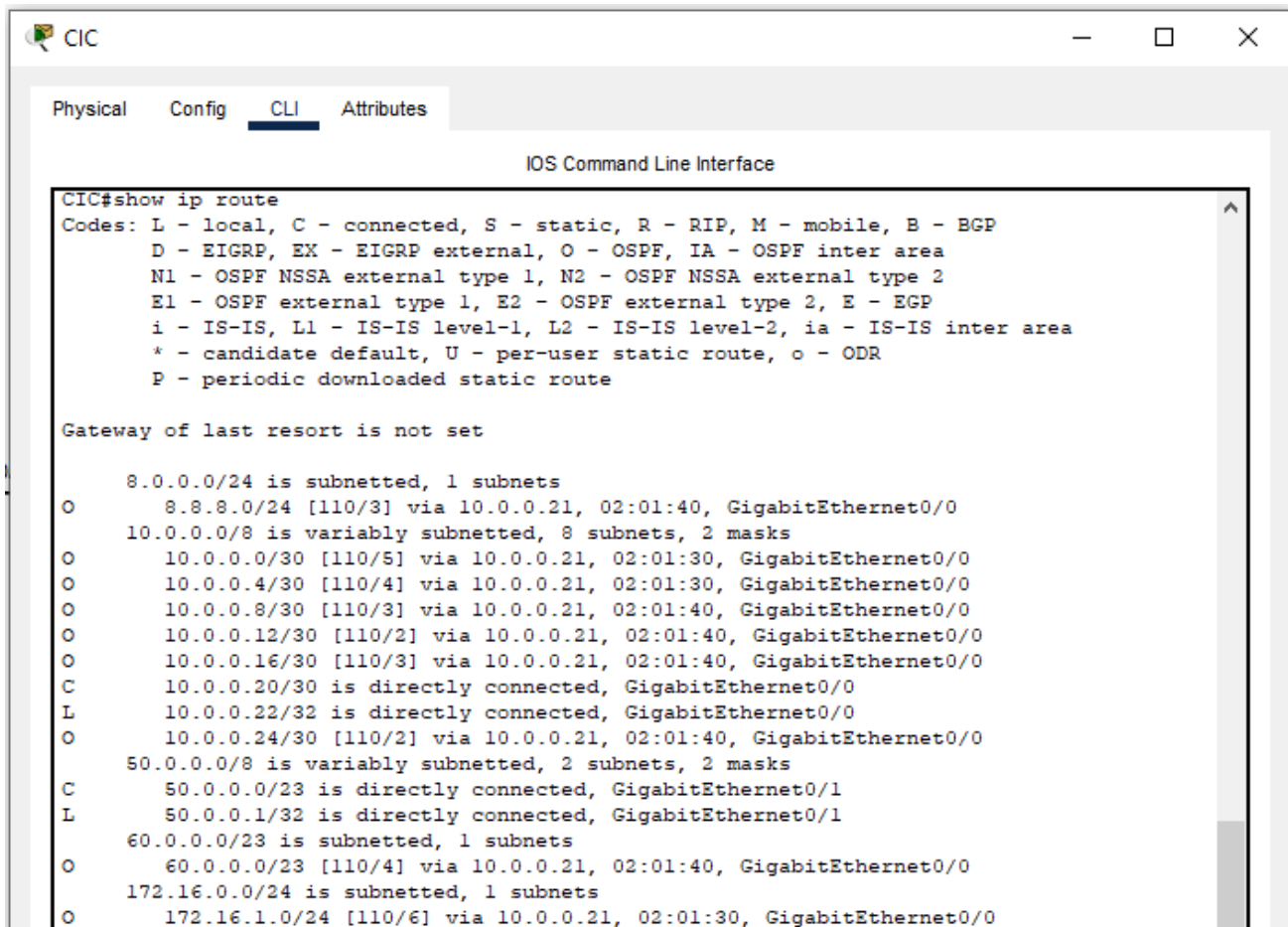
Switch multicapa 4

```
GOOGLE
Physical Config CLI Attributes
IOS Command Line Interface
GOOGLE#show ip route
Codes: L - local, C - connected, S - static, 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

  8.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C    8.8.8.0/24 is directly connected, GigabitEthernet0/1
L    8.8.8.1/32 is directly connected, GigabitEthernet0/1
 10.0.0.0/8 is variably subnetted, 8 subnets, 2 masks
O    10.0.0.0/30 [110/5] via 10.0.0.25, 02:00:20, GigabitEthernet0/0
O    10.0.0.4/30 [110/4] via 10.0.0.25, 02:00:20, GigabitEthernet0/0
O    10.0.0.8/30 [110/3] via 10.0.0.25, 02:37:01, GigabitEthernet0/0
O    10.0.0.12/30 [110/2] via 10.0.0.25, 02:00:30, GigabitEthernet0/0
O    10.0.0.16/30 [110/3] via 10.0.0.25, 02:37:01, GigabitEthernet0/0
O    10.0.0.20/30 [110/2] via 10.0.0.25, 02:37:01, GigabitEthernet0/0
C    10.0.0.24/30 is directly connected, GigabitEthernet0/0
L    10.0.0.26/32 is directly connected, GigabitEthernet0/0
 50.0.0.0/23 is subnetted, 1 subnets
O    50.0.0.0/23 [110/3] via 10.0.0.25, 02:37:01, GigabitEthernet0/0
 60.0.0.0/23 is subnetted, 1 subnets
O    60.0.0.0/23 [110/4] via 10.0.0.25, 02:37:01, GigabitEthernet0/0
172.16.0.0/24 is subnetted, 1 subnets
O    172.16.1.0/24 [110/6] via 10.0.0.25, 02:00:20, GigabitEthernet0/0
```

Router GOOGLE



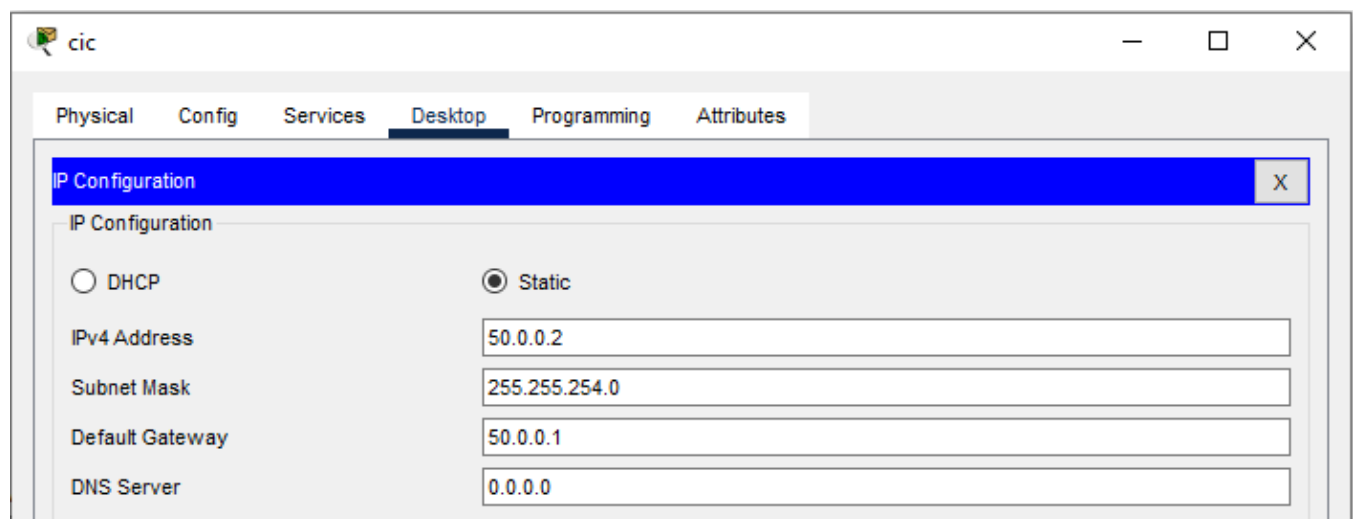
```
CIC#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - 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

 8.0.0.0/24 is subnetted, 1 subnets
O    8.8.8.0/24 [110/3] via 10.0.0.21, 02:01:40, GigabitEthernet0/0
10.0.0.0/8 is variably subnetted, 8 subnets, 2 masks
O    10.0.0.0/30 [110/5] via 10.0.0.21, 02:01:30, GigabitEthernet0/0
O    10.0.0.4/30 [110/4] via 10.0.0.21, 02:01:30, GigabitEthernet0/0
O    10.0.0.8/30 [110/3] via 10.0.0.21, 02:01:40, GigabitEthernet0/0
O    10.0.0.12/30 [110/2] via 10.0.0.21, 02:01:40, GigabitEthernet0/0
O    10.0.0.16/30 [110/3] via 10.0.0.21, 02:01:40, GigabitEthernet0/0
C    10.0.0.20/30 is directly connected, GigabitEthernet0/0
L    10.0.0.22/32 is directly connected, GigabitEthernet0/0
O    10.0.0.24/30 [110/2] via 10.0.0.21, 02:01:40, GigabitEthernet0/0
50.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C    50.0.0.0/23 is directly connected, GigabitEthernet0/1
L    50.0.0.1/32 is directly connected, GigabitEthernet0/1
60.0.0.0/23 is subnetted, 1 subnets
O    60.0.0.0/23 [110/4] via 10.0.0.21, 02:01:40, GigabitEthernet0/0
172.16.0.0/24 is subnetted, 1 subnets
O    172.16.1.0/24 [110/6] via 10.0.0.21, 02:01:30, GigabitEthernet0/0
```

Router CIC

### Paso 3. Habilitar dos servidores Web con el dominio [www.escom.com](http://www.escom.com) y [www.cic.com](http://www.cic.com)



IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 50.0.0.2

Subnet Mask: 255.255.254.0

Default Gateway: 50.0.0.1

DNS Server: 0.0.0.0

CIC IP

cic

Physical Config **Services** Desktop Programming Attributes

**SERVICES**

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS**
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

DNS

DNS Service ☐ On ☒ Off

Resource Records

Name  Type CNAME

Host Name

Add Save Remove

No.	Name	Type	Detail
0	www.cic.com	A Record	50.0.0.2

CIC servicio

escom

Physical Config Services **Desktop** Programming Attributes

IP Configuration X

IP Configuration

☐ DHCP ☒ Static

IPv4 Address

Subnet Mask

Default Gateway

DNS Server

ESCOM IP

escom

Physical Config **Services** Desktop Programming Attributes

**SERVICES**

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS**
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

DNS

DNS Service ☒ On ☐ Off

Resource Records

Name  Type A Record

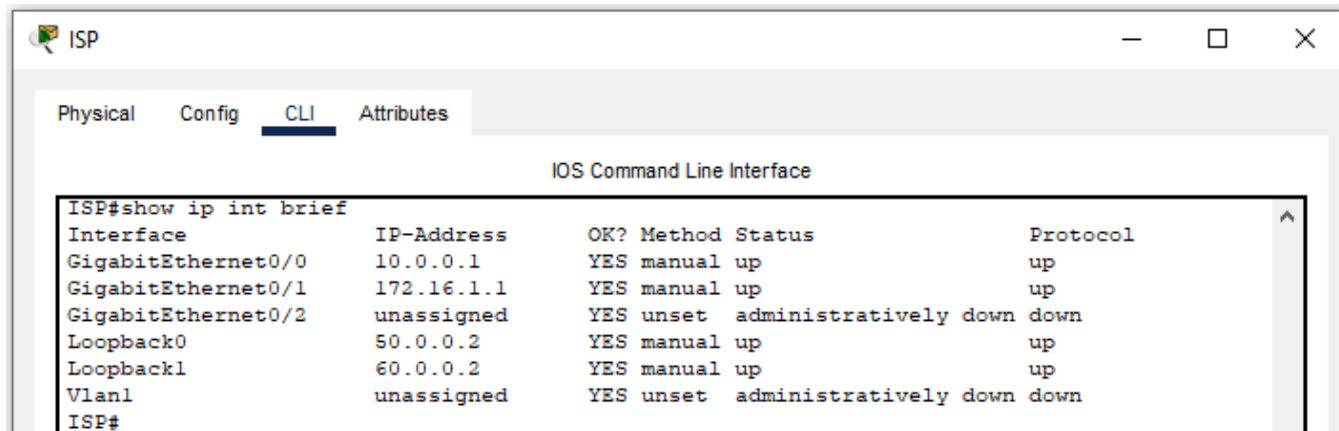
Address

Add Save Remove

No.	Name	Type	Detail
0	www.escom.com	A Record	60.0.0.2

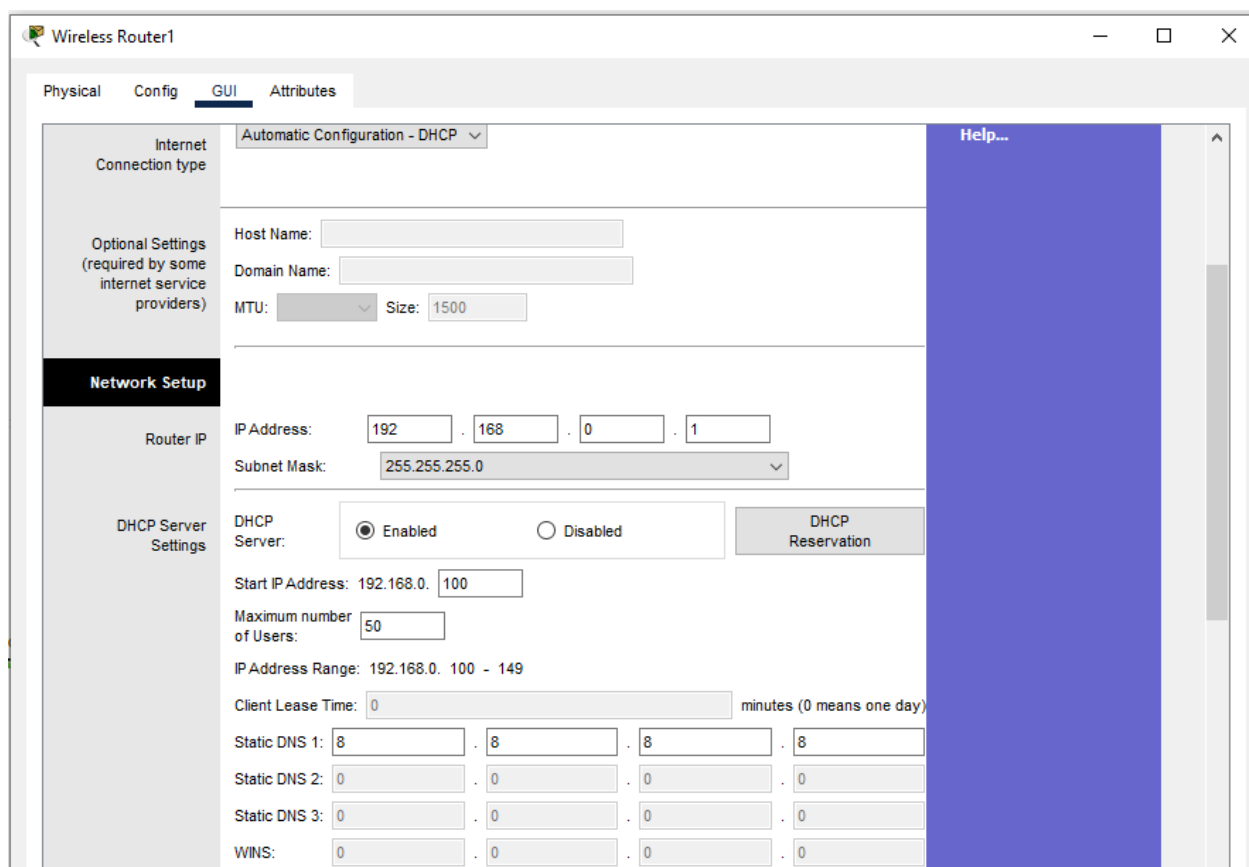
ESCOM Servicio

**Paso 4.** Habilitar la red de ISP como se muestra en la topología con su direccionamiento.



**Router ISP**

**Paso 5.** Habilitar una red doméstica con un router inalámbrico con una laptop, en este router se configurará el servicio de DHCP y se pondrá como DNS server: 8.8.8.8



**Router inalámbrico - Configuración**



Wireless Router1

Physical Config **GUI** Attributes

Wireless-N Broadband Router Firmware Version: v0.93.3

**Wireless** Setup Wireless Security Access Restrictions Applications & Gaming Administration Status

Basic Wireless Settings Basic Wireless Settings

Network Mode: Mixed

Network Name (SSID): WirelessRoute0

Radio Band: Auto

Wide Channel: Auto

Standard Channel: 1 - 2.412GHz

SSID Broadcast: ☒ Enabled ☐ Disabled

Help...

Router inalámbrico – SSID

Wireless Router1

Physical Config **GUI** Attributes

Wireless-N Broadband Router Firmware Version: v0.93.3

**Wireless** Setup Wireless Security Access Restrictions Applications & Gaming Administration Status

Wireless Security Wireless Security

Security Mode: WPA Personal

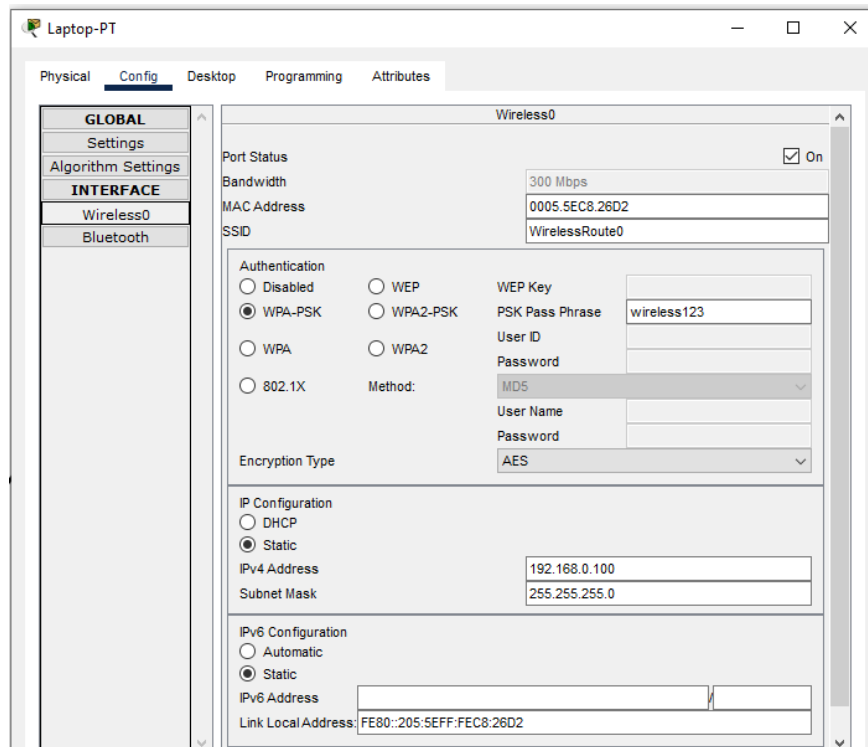
Encryption: TKIP

Passphrase: wireless123

Key Renewal: 3600 seconds

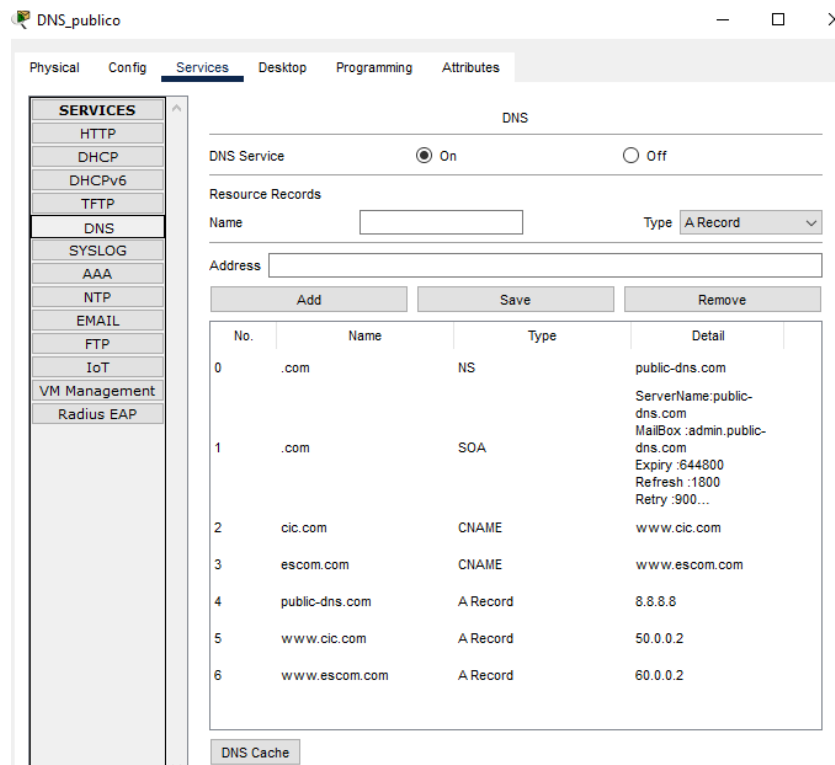
Help...

Router inalámbrico – Contraseña



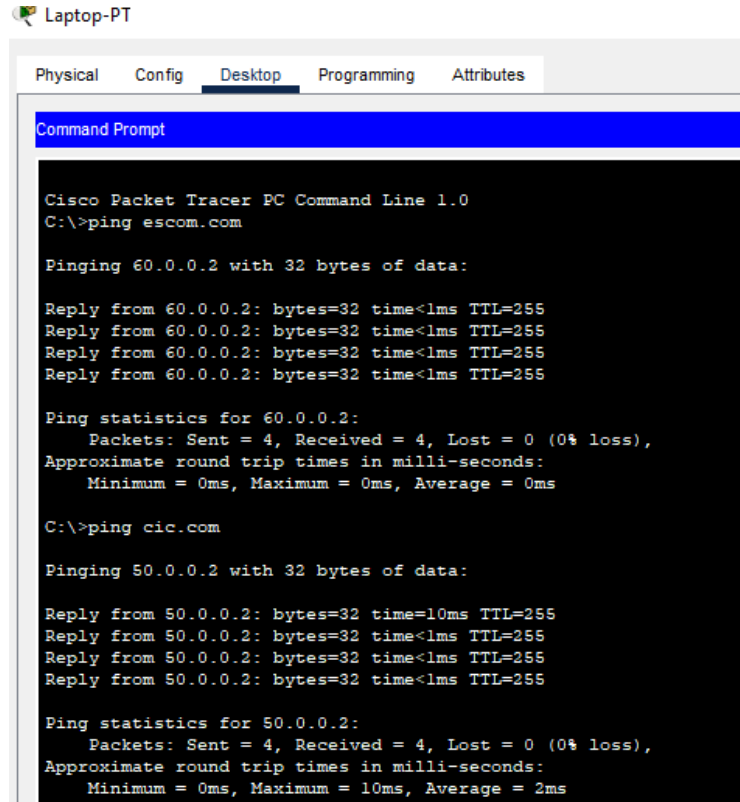
**Laptop 0 – Conexión al router inalámbrico**

**Paso 6. Habilitar el DNS server en el segmento de GOOGLE.**



**DNS Server – Configuración**

**Paso 7.** verificar que funciona la resolución de nombres desde la laptop hacia las páginas mencionadas.



```
Laptop-PT
Physical Config Desktop Programming Attributes
Command Prompt

Cisco Packet Tracer PC Command Line 1.0
C:\>ping escom.com

Pinging 60.0.0.2 with 32 bytes of data:

Reply from 60.0.0.2: bytes=32 time<1ms TTL=255
Reply from 60.0.0.2: bytes=32 time<1ms TTL=255
Reply from 60.0.0.2: bytes=32 time<1ms TTL=255
Reply from 60.0.0.2: bytes=32 time<1ms TTL=255

Ping statistics for 60.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping cic.com

Pinging 50.0.0.2 with 32 bytes of data:

Reply from 50.0.0.2: bytes=32 time=10ms TTL=255
Reply from 50.0.0.2: bytes=32 time<1ms TTL=255
Reply from 50.0.0.2: bytes=32 time<1ms TTL=255
Reply from 50.0.0.2: bytes=32 time<1ms TTL=255

Ping statistics for 50.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 10ms, Average = 2ms
```

**Laptop haciendo ping a los servidores web**

## Conclusiones

**Arévalo Andrade Miguel Ángel**

Se lograron los siguientes objetivos:

- Configurar la topología con los dispositivos
- Realizar el protocolo de enrutamiento OSPF
- Habilitar dos servidores Web con el dominio www.escom.com y www.cic.com
- Habilitar la red de ISP
- Habilitar una red doméstica con un router inalámbrico con una laptop.
- Habilitar el DNS server en el segmento de GOOGLE.

### **Castro Cruces Jorge Eduardo**

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### **López Mares Irene Elizabeth**

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### **Pedroza García Rodolfo**

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