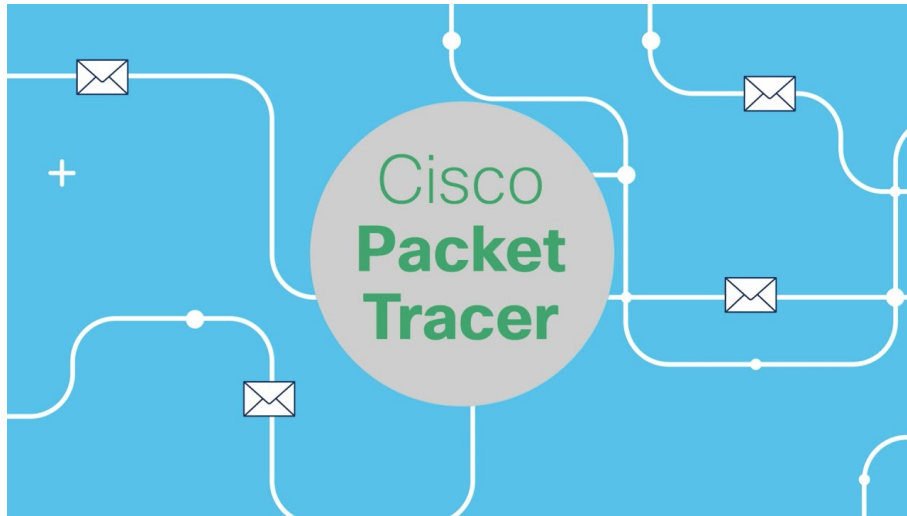


PRÁCTICA 5:

CONFIGURACIÓN DE UNA RED USANDO PACKET TRACER



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UNAM

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1 Procedimiento

1. Primero creamos un router wireless, donde establecemos una IP estática.

The image displays two screenshots of the Wireless Router0 configuration interface, showing the process of setting a static IP.

Top Screenshot: Internet Setup

- Tab: **Internet Setup**
- Internet Connection type: **Static IP**
- Internet IP Address: 132 . 248 . 181 . 13
- Subnet Mask: 255 . 255 . 255 . 0
- Default Gateway: 132 . 248 . 181 . 1
- DNS 1: 132 . 248 . 181 . 10
- DNS 2 (Optional): 0 . 0 . 0 . 0
- DNS 3 (Optional): 0 . 0 . 0 . 0
- Host Name:
- Domain Name:
- MTU: Size: 1500

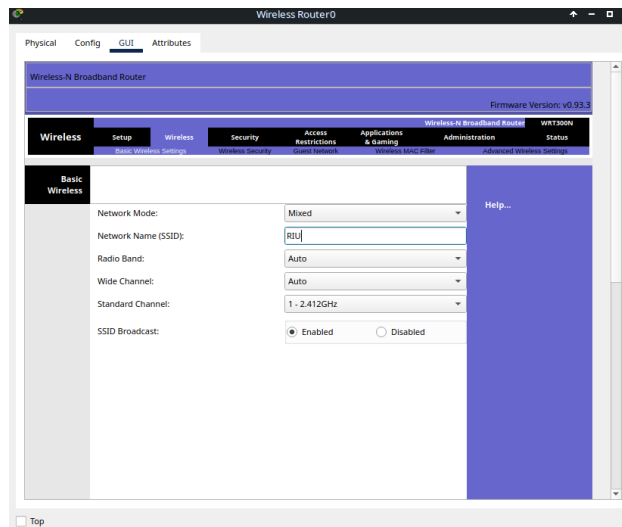
Bottom Screenshot: Network Setup

- Tab: **Network Setup**
- Router IP: IP Address: 10 . 10 . 0 . 1
- Subnet Mask: 255.255.255.128
- DHCP Server: ☒ Enabled ☐ Disabled
- Start IP Address: 192.168.0. 100
- Maximum number of Users: 50
- IP Address Range: 192.168.0. 100 - 149
- Client Lease Time: 0 minutes (0 means one day)
- Static DNS 1: 0 . 0 . 0 . 0
- Static DNS 2: 0 . 0 . 0 . 0
- Static DNS 3: 0 . 0 . 0 . 0
- WINS: 0 . 0 . 0 . 0

Buttons: **Save Settings**, **Cancel Changes**

Configuración de la Ip estática.

2. Después le pones el nombre de RIU

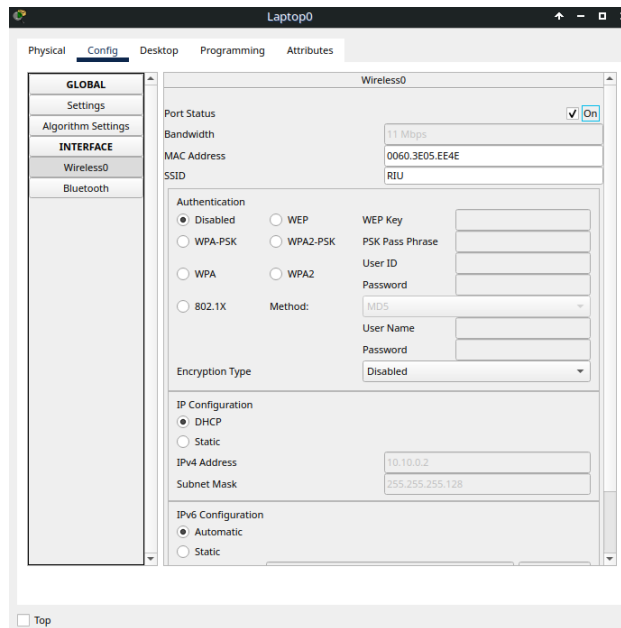


Asignación de nombre

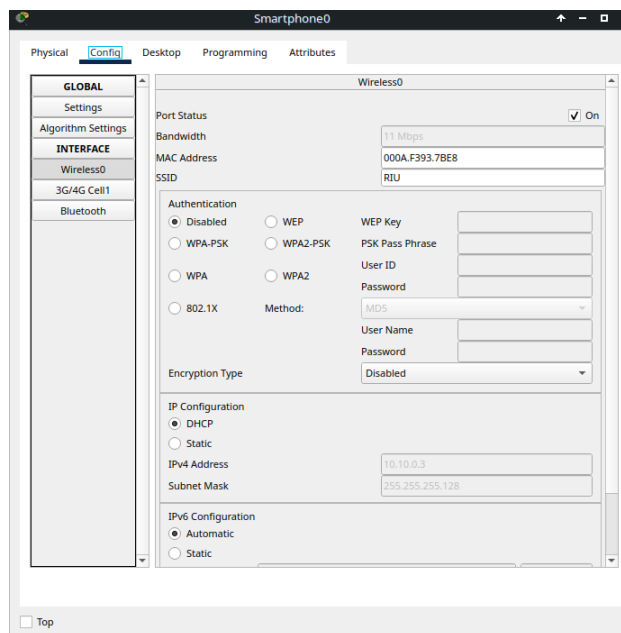
3. Después configuramos un laptop con una antena y un smartphone



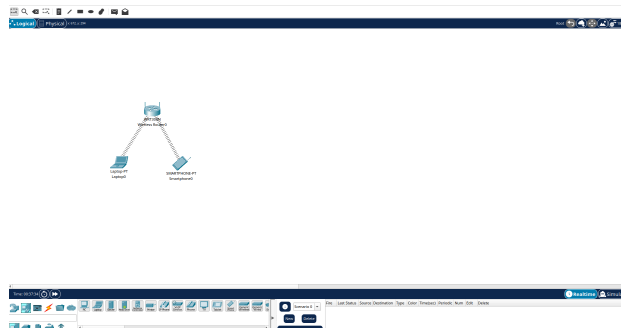
4. La configuración de ip, la ponemos en DHCP.



Configuraación de Laptop



Configuracion de Smartphone



Esquema

- Despues procedemos a configurar los servidores de la facultad de ciencias y modificamos el index.html donde ponemos nuestro nombre.

The screenshot shows a web browser window with the address bar displaying 'www.fcencias.unam.mx'. The interface has a top navigation bar with tabs: Physical, Config, Services, Desktop, Programming, and Attributes. The 'Config' tab is active. On the left, a sidebar menu shows 'GLOBAL' (with sub-items 'Settings' and 'Algorithm Settings') and 'INTERFACE' (with 'FastEthernet0' selected). The main content area is titled 'FastEthernet0' and contains the following configuration options:

- Port Status: ☒ On
- Bandwidth: ☒ 100 Mbps, ☐ 10 Mbps, ☒ Auto
- Duplex: ☒ Half Duplex, ☐ Full Duplex, ☒ Auto
- MAC Address: 0001.4312.92E8
- IP Configuration: ☐ DHCP, ☒ Static
 - IPv4 Address: 132.248.181.11
 - Subnet Mask: 255.255.255.0
- IPv6 Configuration: ☐ Automatic, ☒ Static
 - IPv6 Address: [empty field]
 - Link Local Address: FE80::201:43FF:FE12:92E8

A 'Top' link is located at the bottom left of the configuration area.

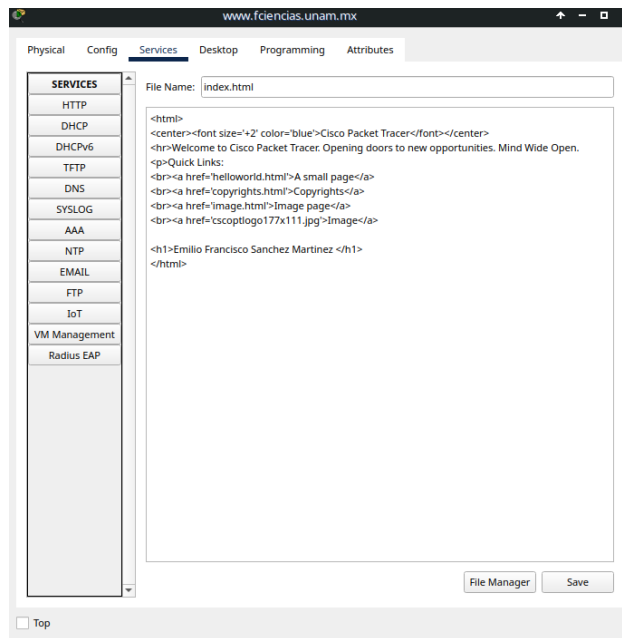
www.fcencias.unam.mx configuracion 1

The screenshot shows the same web browser window, but now the 'Global Settings' page is displayed. The sidebar menu remains the same, but 'FastEthernet0' is no longer selected. The main content area is titled 'Global Settings' and contains the following configuration options:

- Display Name: www.fcencias.unam.mx
- Gateway/DNS IPv4: ☐ DHCP, ☒ Static
 - Default Gateway: 132.248.181.1
 - DNS Server: 132.248.181.10
- Gateway/DNS IPv6: ☐ Automatic, ☒ Static
 - Default Gateway: [empty field]
 - DNS Server: [empty field]

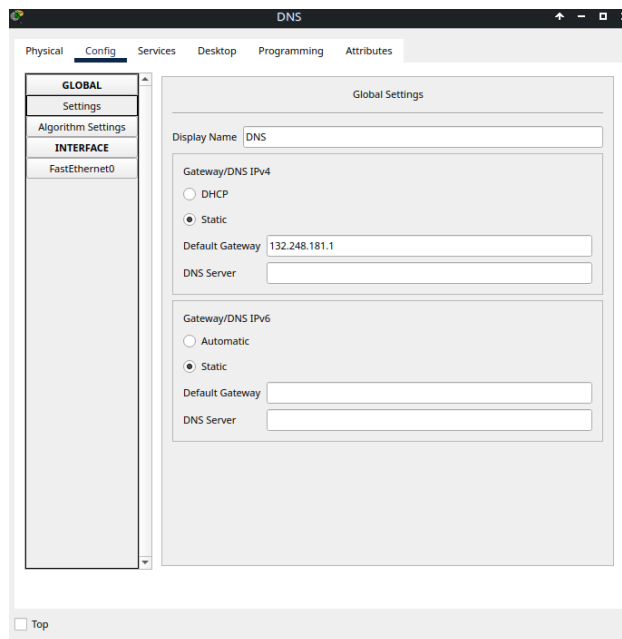
A 'Top' link is located at the bottom left of the configuration area.

www.fcencias.unam.mx configuración 2



Modificación de index.html

6. Hacemos lo mismo con el servidor DNS, pero desactivamos el http y activamos DNS.



www.nsfciencias.unam.mx configuración 1

DNS

Physical Config Services Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

FastEthernet0

Port Status ☒ On
Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto
Duplex ☒ Half Duplex ☐ Full Duplex ☒ Auto
MAC Address 00D0.BAAC.23EE

IP Configuration

☐ DHCP
☒ Static

IPv4 Address 132.248.181.10
Subnet Mask 255.255.255.0

IPv6 Configuration

☐ Automatic
☒ Static

IPv6 Address
Link Local Address FE80::2D0:BAFF:FEAC:23EE

☐ Top

DNS

Physical Config Services Desktop Programming Attributes

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

Radius EAP

HTTP

HTTP

☐ On ☒ Off

HTTPS

☐ On ☒ Off

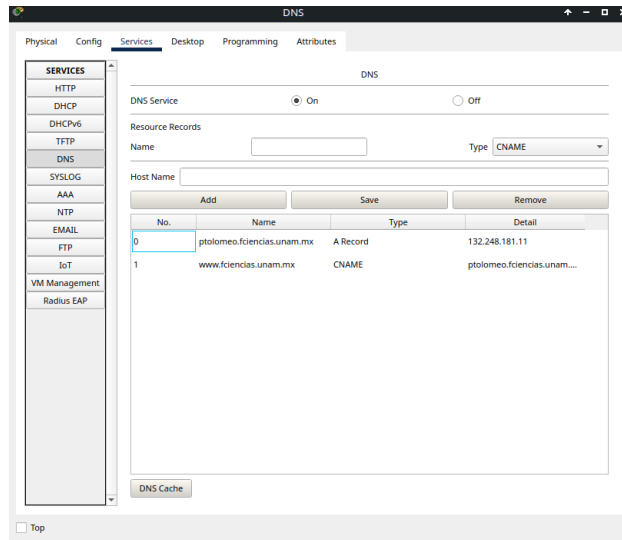
File Manager

	File Name	Edit	Delete
1	copyrights.html	(edit)	(delete)
2	cscoptlogo177x111.jpg		(delete)
3	helloworld.html	(edit)	(delete)
4	image.html	(edit)	(delete)
5	index.html	(edit)	(delete)

New File

Import

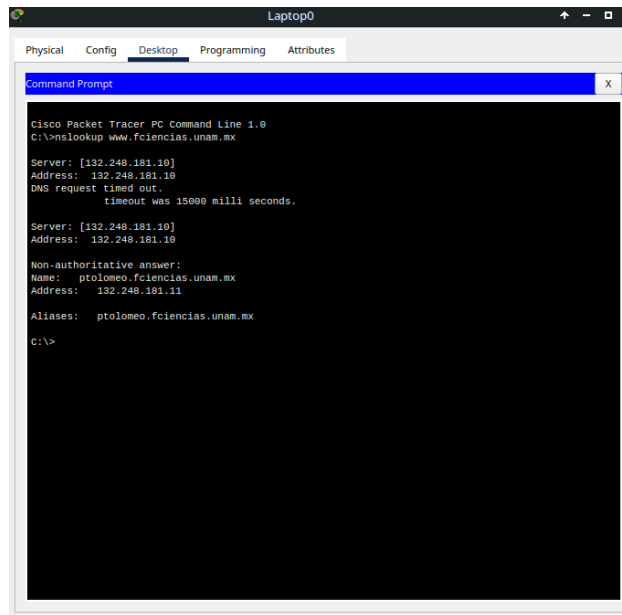
☐ Top



7. Para saber que sirven usamos las aplicaciones de laptop de browser y command prompt.

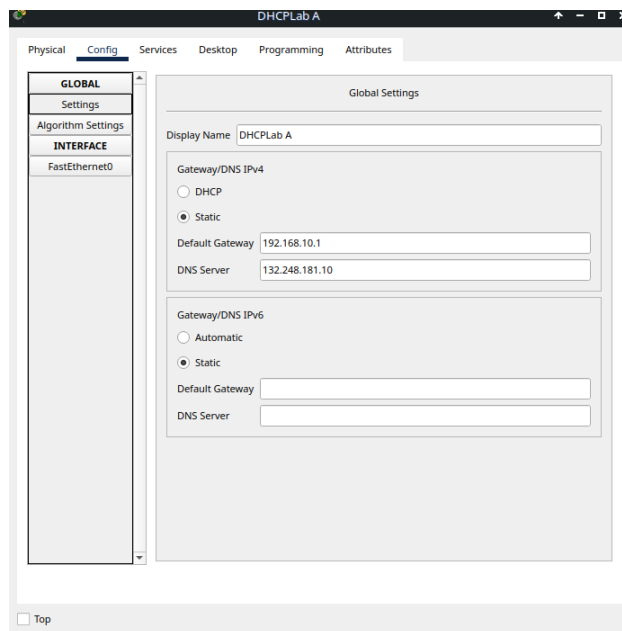


Navegador con la dirección



Command prompt de la laptop en funcionamiento

8. Ahora vamos a configurar la zona de laboratorio. Vamos a crear un servidor DHCP, una impresora y dos computadoras.



Configuración del gateway

The screenshot shows the 'Config' tab in the DHCP Lab A application. The left sidebar has 'INTERFACE' selected, with 'FastEthernet0' highlighted. The main panel shows the configuration for 'FastEthernet0'. The 'Port Status' is checked and set to 'On'. 'Bandwidth' is set to '100 Mbps' and 'Duplex' is set to 'Half Duplex'. The 'MAC Address' is '0001.6319.C71E'. Under 'IP Configuration', 'Static' is selected. The 'IPv4 Address' is '192.168.10.2' and the 'Subnet Mask' is '255.255.255.0'. Under 'IPv6 Configuration', 'Static' is selected. The 'IPv6 Address' is empty, and the 'Link Local Address' is 'FE80::201:63FF:FE19:C71E'.

Configuración de la ip estatica

The screenshot shows the 'Services' tab in the DHCP Lab A application. The left sidebar has 'SERVICES' selected, with 'DHCP' highlighted. The main panel shows the configuration for 'DHCP'. The 'Interface' is 'FastEthernet0' and the 'Service' is 'On'. The 'Pool Name' is 'serverPool'. The 'Default Gateway' is '192.168.10.1' and the 'DNS Server' is '132.248.181.10'. The 'Start IP Address' is '192.168.10.4' and the 'Subnet Mask' is '255.255.255.0'. The 'Maximum Number of Users' is '120'. The 'TFTP Server' and 'WLC Address' are both '0.0.0.0'. Below the configuration fields is a table with the following data:

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	192.168.10.1	132.248.181.10	192.168.10.4	255.255.255.0	120	0.0.0.0	0.0.0.0

Configuración del DHCP

The screenshot shows the 'printer-lab A' configuration window. The 'Config' tab is active, and the 'FastEthernet0' interface is selected. The 'Global Settings' section is visible, showing the following configuration:

- Display Name: printer-lab A
- Gateway/DNS IPv4:
 - ☐ DHCP
 - ☒ Static
 - Default Gateway: 192.168.10.1
 - DNS Server: 132.248.181.10
- Gateway/DNS IPv6:
 - ☐ Automatic
 - ☒ Static
 - Default Gateway:
 - DNS Server:

At the bottom left, there is a 'Top' button.

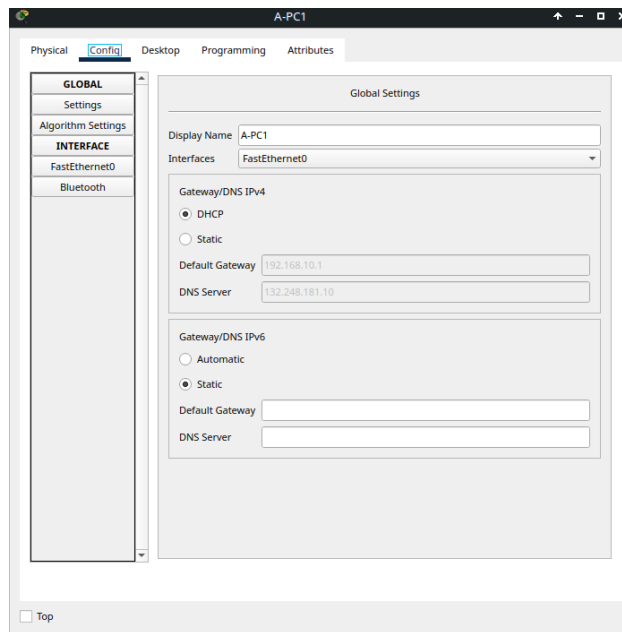
Gateway de la impresora

The screenshot shows the 'printer-lab A' configuration window. The 'Config' tab is active, and the 'FastEthernet0' interface is selected. The 'FastEthernet0' section is visible, showing the following configuration:

- Port Status: ☒ On
- Bandwidth: ☒ 100 Mbps ☐ 10 Mbps ☒ Auto
- Duplex: ☒ Half Duplex ☐ Full Duplex ☒ Auto
- MAC Address: 0001.C9CC.7356
- IP Configuration:
 - ☐ DHCP
 - ☒ Static
 - IPv4 Address: 192.168.10.3
 - Subnet Mask: 255.255.255.0
- IPv6 Configuration:
 - ☐ Automatic
 - ☒ Static
 - IPv6 Address:
 - Link Local Address: FE80::201:C9FF:FECC:7356

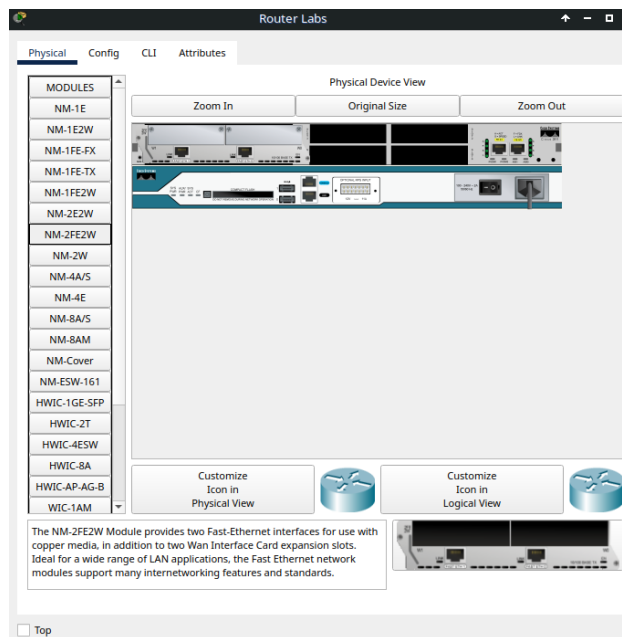
At the bottom left, there is a 'Top' button.

Configuración de la ip estática



Configuracion de las PCs

9. Despues los unimos con un switch y luego configuramos el router del laboratorio.



Agregamos el módulo al router

Router Labs

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet1/0

FastEthernet1/1

FastEthernet0/0

Port Status ☐ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☒ Half Duplex ☐ Full Duplex ☒ Auto

MAC Address 0040.0B8B.6001

IP Configuration

IPv4 Address 132.248.181.12

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

Press RETURN to get started!

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 132.248.181.12 255.255.0.0
Router(config-if)#ip address 132.248.181.12 255.255.255.0
Router(config-if)#
```

☐ Top

Router Labs

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet1/0

FastEthernet1/1

FastEthernet0/1

Port Status ☐ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☒ Half Duplex ☐ Full Duplex ☒ Auto

MAC Address 0040.0B8B.6002

IP Configuration

IPv4 Address 192.168.10.1

Subnet Mask 255.255.255.0

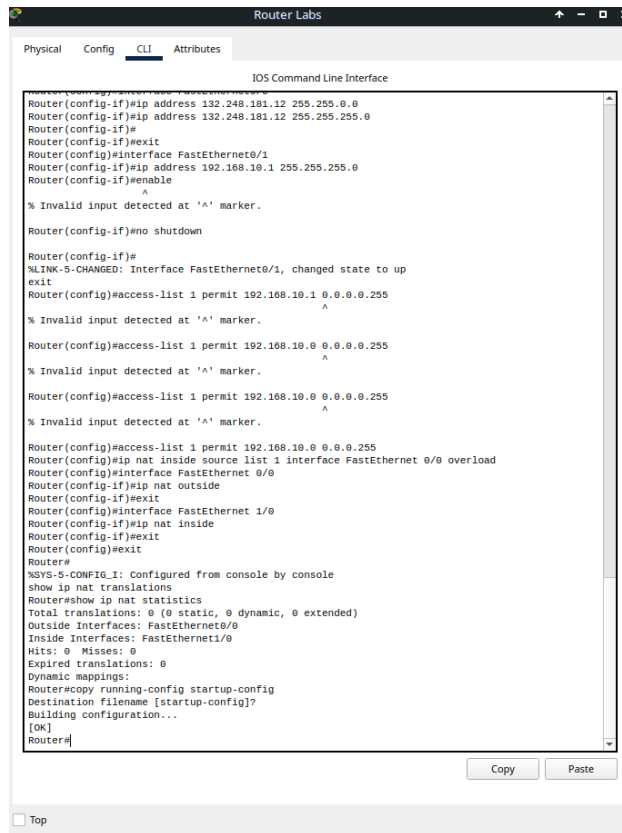
Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 132.248.181.12 255.255.0.0
Router(config-if)#ip address 132.248.181.12 255.255.255.0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#
```

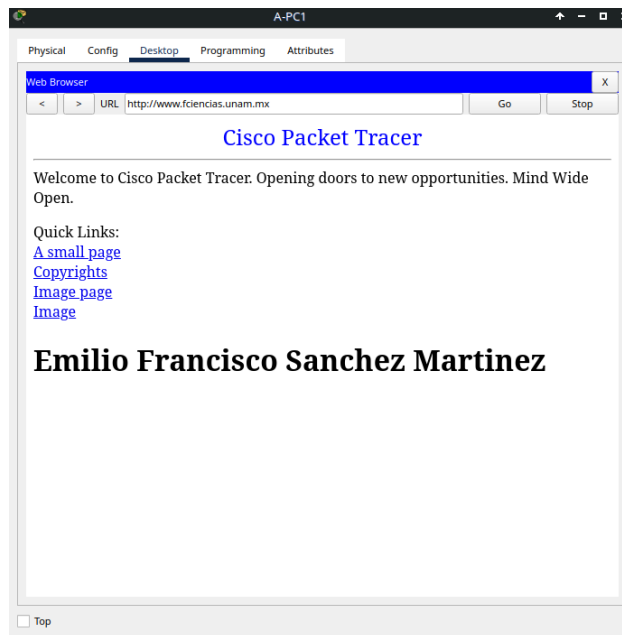
☐ Top

Configuracion de FastEthernet0/0 y 0/1



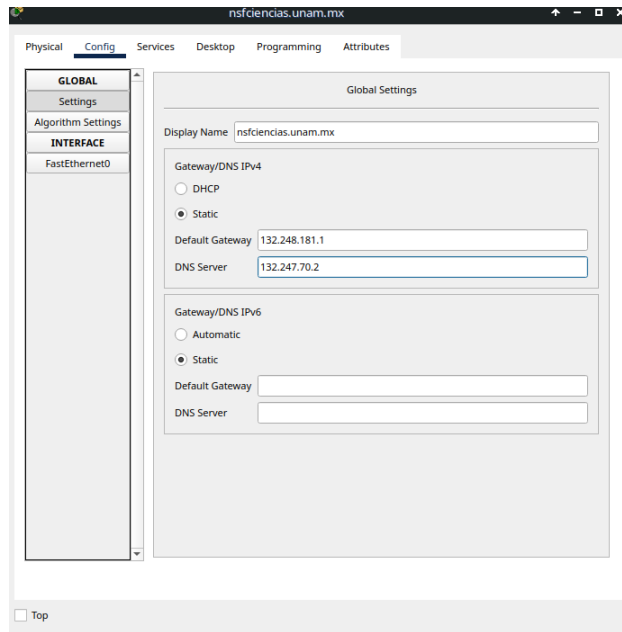
Ejecucion de comando en CLI.

10. Una vez acabado de configurar nos cercioramos de que funciona.

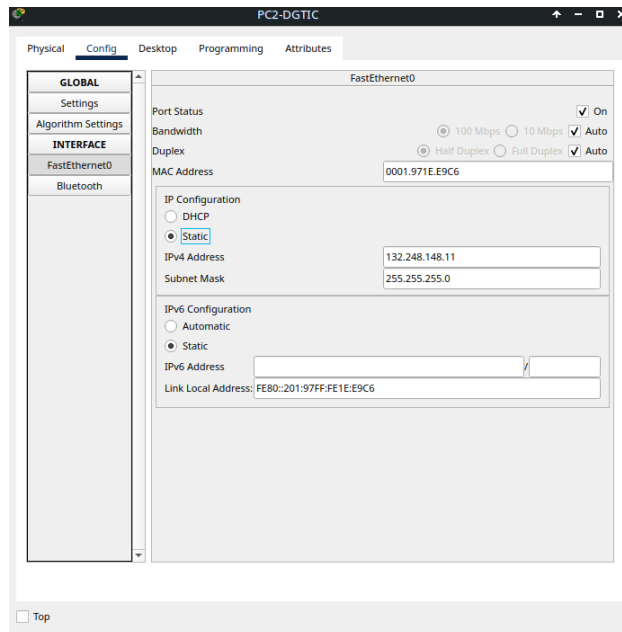


Brower de A-PC1 con www.fciencias.unam.mx

11. Volvemos a el DNS y configuramos el servidor DNS como se muestra en la imagen.



12. Vamos a crear la zona de DGTIC de la siguiente forma:



PC2-DGTIC
Physical
Config
Desktop
Programming
Attributes

GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth

Global Settings
Display Name: PC2-DGTIC
Interfaces: FastEthernet0
Gateway/DNS IPv4
☐ DHCP
☒ Static
Default Gateway: 132.248.148.1
DNS Server: 132.247.70.2
Gateway/DNS IPv6
☐ Automatic
☒ Static
Default Gateway:
DNS Server:

☐ Top

PC1-DGTIC
Physical
Config
Desktop
Programming
Attributes

GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth

FastEthernet0
Port Status: ☒ On
Bandwidth: ☒ 100 Mbps ☐ 10 Mbps ☒ Auto
Duplex: ☒ Half Duplex ☐ Full Duplex ☒ Auto
MAC Address: 00E0.F7A6.08CD
IP Configuration
☐ DHCP
☒ Static
IPv4 Address: 132.248.148.10
Subnet Mask: 255.255.255.0
IPv6 Configuration
☐ Automatic
☒ Static
IPv6 Address:
Link Local Address: FE80::2E0:F7FF:FEA6:8CD

☐ Top

PC1-DGTIC
Physical Config Desktop Programming Attributes

GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth

Global Settings
Display Name PC1-DGTIC
Interfaces FastEthernet0
Gateway/DNS IPv4
☐ DHCP
☒ Static
Default Gateway 132.248.148.1
DNS Server 132.247.70.2
Gateway/DNS IPv6
☐ Automatic
☒ Static
Default Gateway
DNS Server

☐ Top

ns1.unam.mx
Physical Config Services Desktop Programming Attributes

GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0

Global Settings
Display Name ns1.unam.mx
Gateway/DNS IPv4
☐ DHCP
☒ Static
Default Gateway 132.247.70.1
DNS Server
Gateway/DNS IPv6
☐ Automatic
☒ Static
Default Gateway
DNS Server

☐ Top

ns1.unam.mx

Physical **Config** Services Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☒ Half Duplex ☐ Full Duplex ☒ Auto

MAC Address 0000.583D.150B

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 132.247.70.2

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::2D0:58FF:FE3D:150B

☐ Top

www.unam.mx

Physical **Config** Services Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Global Settings

Display Name www.unam.mx

Gateway/DNS IPv4

☐ DHCP

☒ Static

Default Gateway 132.247.70.1

DNS Server 132.247.70.2

Gateway/DNS IPv6

☐ Automatic

☒ Static

Default Gateway

DNS Server

☐ Top

www.unam.mx

Physical **Config** Services Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☒ Half Duplex ☐ Full Duplex ☒ Auto

MAC Address 0005.5EAE.330A

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 132.247.70.3

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::205:5EFF:FEAE:330A

☐ Top

www.dgapa.unam.mx

Physical **Config** Services Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Global Settings

Display Name www.dgapa.unam.mx

Gateway/DNS IPv4

☐ DHCP

☒ Static

Default Gateway 132.247.70.1

DNS Server 132.247.70.2

Gateway/DNS IPv6

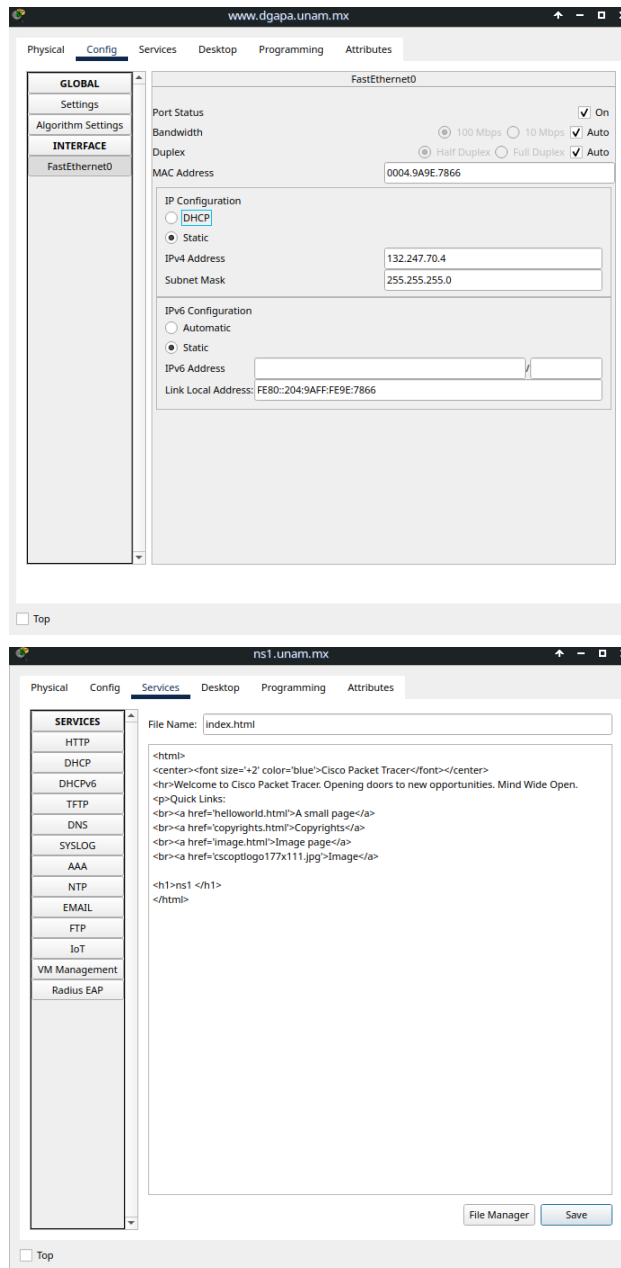
☐ Automatic

☒ Static

Default Gateway

DNS Server

☐ Top



Modificación del index.html

13. Ahora configuramos los FastEthernet del router de DGTIC

Router-dgtic

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet1/0

FastEthernet1/1

FastEthernet0/0

Port Status ☐ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☒ Half Duplex ☐ Full Duplex ☒ Auto

MAC Address 0002.4A53.8201

IP Configuration

IPv4 Address 132.247.70.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```

Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 132.247.70.1 255.255.0.0
Router(config-if)#ip address 132.247.70.1 255.255.255.0
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#

```

☐ Top

Router-dgtic

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet1/0

FastEthernet1/1

FastEthernet0/1

Port Status ☐ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☒ Half Duplex ☐ Full Duplex ☒ Auto

MAC Address 0002.4A53.8202

IP Configuration

IPv4 Address 132.248.148.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

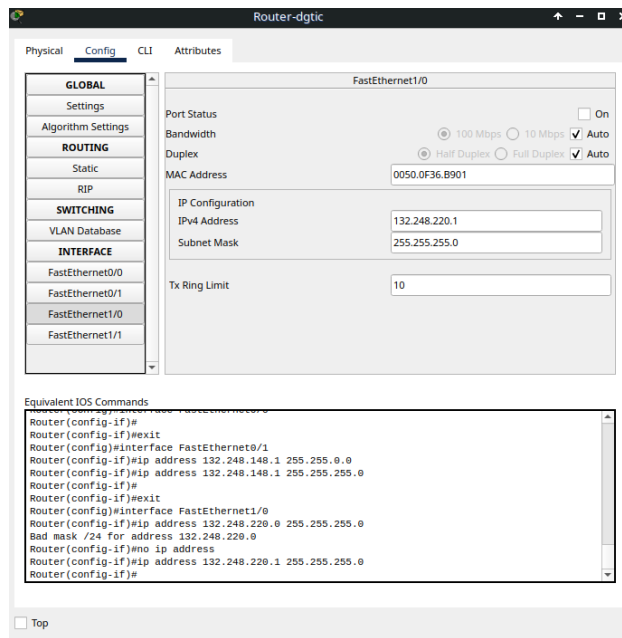
Equivalent IOS Commands

```

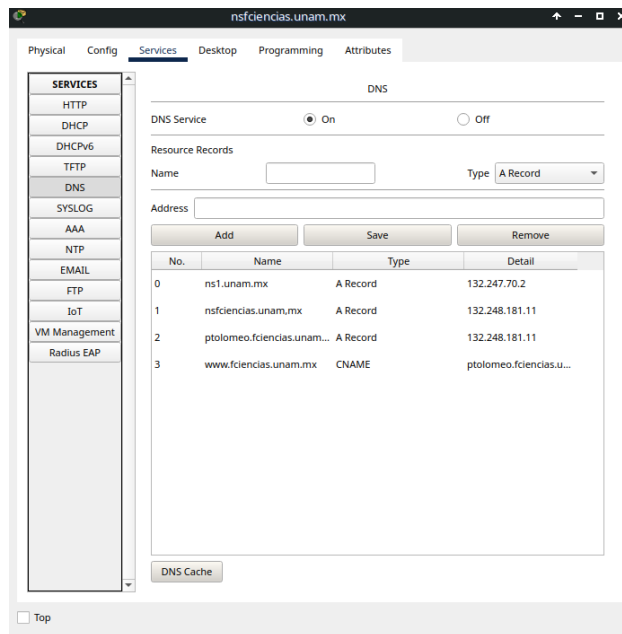
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#ip address 132.248.148.1 255.255.0.0
Router(config-if)#ip address 132.248.148.1 255.255.255.0
Router(config-if)#

```

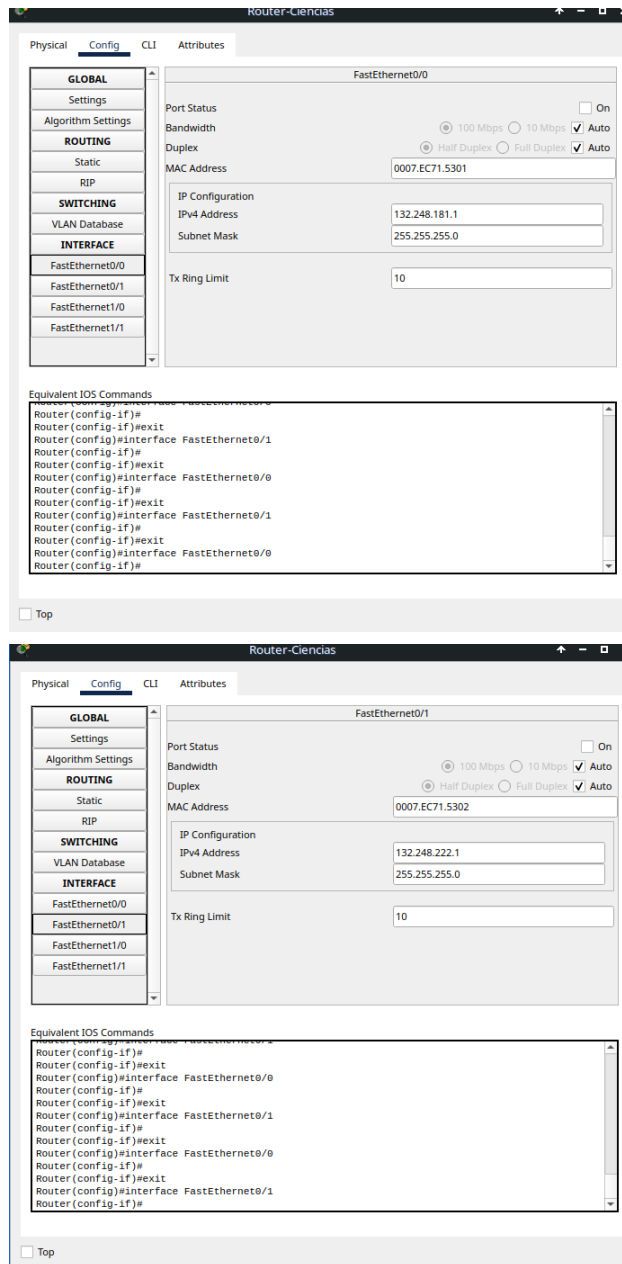
☐ Top



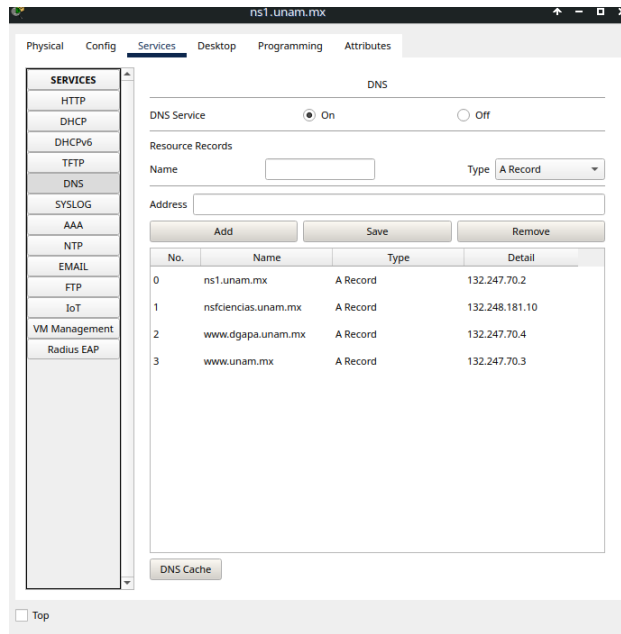
14. Lo mismo hacemos con el router de ciencias y ademas en servidores DNS agregamos los registros:



Registros

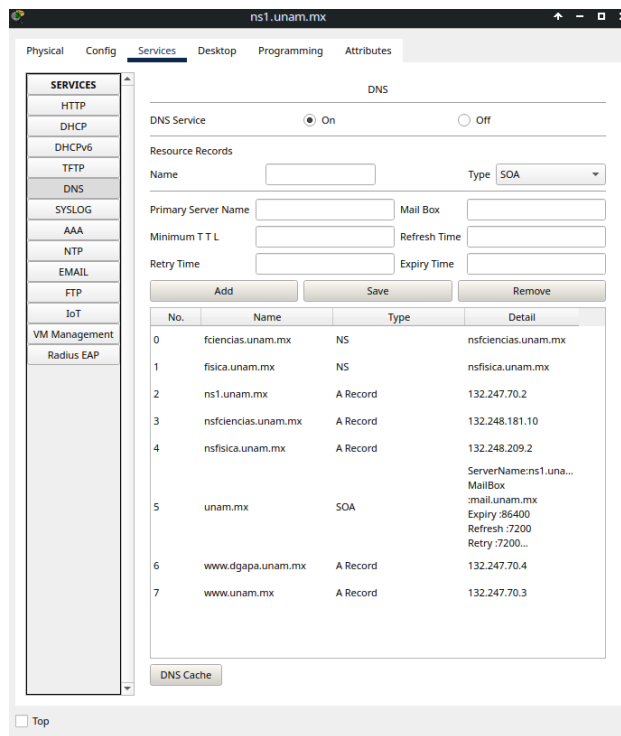


15. Ahora agregamos los registros de DNS a ns1.unam.mx

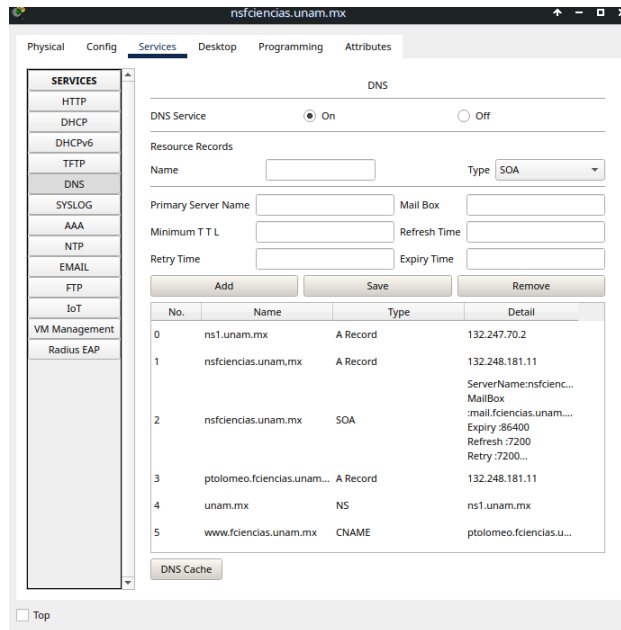


Registros del servidor de DGTIC

16. Agragmas más registros a ambos servidores.



ns1.unam.mx



nsfciencias.unam.mx

Ahora vamos a ponerles nombres a los routers.

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R-Ciencias
R-Ciencias(config)#
```

Router Ciencias

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R-DGTIC
R-DGTIC(config)#
```

Router DGTIC

```
Router>enable
Router#configure-terminal
Translating "configure-terminal"...domain server (255.255.255.255)
% Unknown command or computer name, or unable to find computer address

Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R-LABS
R-LABS(config)#
```

Router del laboratorio

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

SW-core

17. A este ultimo le realizamos los siguientes comandos para configurar los EthernetFast

```
SW-Core(config)#
SW-Core(config)#interface FastEthernet 0/1
SW-Core(config-if)#no switchport
SW-Core(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down

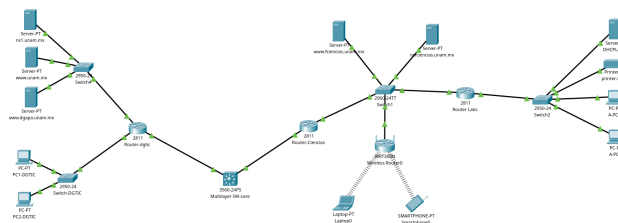
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
ip address 132.248.220.2 255.255.255.0
SW-Core(config-if)#no shutdown
SW-Core(config-if)#exit
SW-Core(config)#
```

```

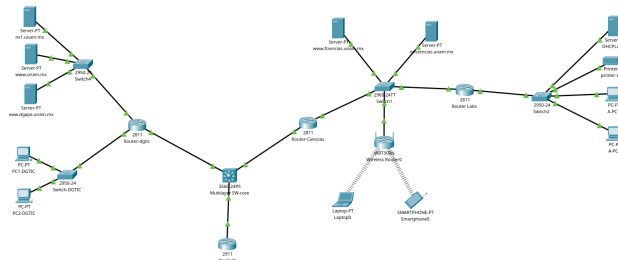
SW-Core(config-if)#switchport mode access
SW-Core(config-if)#
SW-Core(config-if)#exit
SW-Core(config)#
SW-Core(config)#interface FastEthernet 0/1
SW-Core(config-if)#no switchport
SW-Core(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
ip address 132.248.220.2 255.255.255.0
SW-Core(config-if)#no shutdown
SW-Core(config-if)#exit
SW-Core(config)#interface FastEthernet 0/2
SW-Core(config-if)#no switchport
SW-Core(config-if)#ip address 132.248.221.2 255.255.255.0
SW-Core(config-if)#no shutdown
SW-Core(config-if)#exit
SW-Core(config)#interface FastEthernet 0/3
SW-Core(config-if)#no switchport
SW-Core(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up
ip address 132.248.222.2 255.255.255.0
SW-Core(config-if)#no shutdown
SW-Core(config-if)#exit
SW-Core(config)#

```

18. Agregamos un router pero no le hacemos ninguna modificación, y quedaría de la siguiente forma



Esquema sin router UNAM



Esquema completo

Router-dgtic

Physical Config CLI Attributes

IOS Command Line Interface

Press RETURN to get started!

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up

R-Dgtic>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

132.247.0.0/16 is variably subnetted, 2 subnets, 2 masks
C 132.247.70.0/24 is directly connected, FastEthernet0/0
L 132.247.70.1/32 is directly connected, FastEthernet0/0
132.248.0.0/16 is variably subnetted, 4 subnets, 2 masks
C 132.248.148.0/24 is directly connected, FastEthernet0/1
L 132.248.148.1/32 is directly connected, FastEthernet0/1
C 132.248.220.0/24 is directly connected, FastEthernet1/0
L 132.248.220.1/32 is directly connected, FastEthernet1/0

R-Dgtic>show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/0	132.247.70.1	YES	manual	up	up
FastEthernet0/1	132.248.148.1	YES	manual	up	up
FastEthernet1/0	132.248.220.1	YES	manual	up	up
FastEthernet1/1	unassigned	YES	unset	administratively down	down
Vlan1	unassigned	YES	unset	administratively down	down

R-Dgtic>

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Router-Ciencias

Physical Config CLI Attributes

IOS Command Line Interface

Processor board ID JAD05100MTZ (4292891495)
4 FastEthernet interface(s)
DRAM configuration is 64 bits wide with parity disabled.
256K bytes of non-volatile configuration memory.
240B50K bytes of ATA System CompactFlash 0 (Read/Write)

Press RETURN to get started!

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

R-Ciencias>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

132.248.0.0/16 is variably subnetted, 4 subnets, 2 masks
C 132.248.181.0/24 is directly connected, FastEthernet0/0
L 132.248.181.1/32 is directly connected, FastEthernet0/0
C 132.248.222.0/24 is directly connected, FastEthernet0/1
L 132.248.222.1/32 is directly connected, FastEthernet0/1

R-Ciencias>show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/0	132.248.181.1	YES	manual	up	up
FastEthernet0/1	132.248.222.1	YES	manual	up	up
FastEthernet1/0	unassigned	YES	unset	administratively down	down
FastEthernet1/1	unassigned	YES	unset	administratively down	down
Vlan1	unassigned	YES	unset	administratively down	down

R-Ciencias>

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Router Labs

PhysicalConfigCLIAttributes

IOS Command Line Interface

```

R-LAB>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 - OOR
       P - periodic downloaded static route

Gateway of last resort is not set

132.248.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       132.248.181.0/24 is directly connected, FastEthernet0/0
L       132.248.181.12/32 is directly connected, FastEthernet0/0
C       192.168.10.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.10.0/24 is directly connected, FastEthernet1/0
L       192.168.10.1/32 is directly connected, FastEthernet1/0

R-LAB>show ip interface brief
Interface      IP-Address      OK? Method Status      Protocol
FastEthernet0/0 132.248.181.12  YES manual up           up
FastEthernet0/1 unassigned      YES manual administratively down down
FastEthernet1/0 192.168.10.1   YES manual up           up
FastEthernet1/1 unassigned      YES unset  administratively down down
Vlan1          unassigned      YES unset  administratively down down
R-LAB>

```

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Multilayer SW-core

PhysicalConfigCLIAttributes

IOS Command Line Interface

```

%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up

SW-Core>show ip route
Default gateway is not set

Host          Gateway      Last Use    Total Uses  Interface
ICMP redirect cache is empty

SW-Core>show ip interface brief
Interface      IP-Address      OK? Method Status      Protocol
FastEthernet0/1 132.248.220.2  YES manual up           up
FastEthernet0/2 132.248.221.2  YES manual up           up
FastEthernet0/3 132.248.222.2  YES manual up           up
FastEthernet0/4 unassigned      YES unset  down        down
FastEthernet0/5 unassigned      YES unset  down        down
FastEthernet0/6 unassigned      YES unset  down        down
FastEthernet0/7 unassigned      YES unset  down        down
FastEthernet0/8 unassigned      YES unset  down        down
FastEthernet0/9 unassigned      YES unset  down        down
FastEthernet0/10 unassigned      YES unset  down        down
FastEthernet0/11 unassigned      YES unset  down        down
FastEthernet0/12 unassigned      YES unset  down        down
FastEthernet0/13 unassigned      YES unset  down        down
FastEthernet0/14 unassigned      YES unset  down        down
FastEthernet0/15 unassigned      YES unset  down        down
FastEthernet0/16 unassigned      YES unset  down        down
FastEthernet0/17 unassigned      YES unset  down        down
FastEthernet0/18 unassigned      YES unset  down        down
FastEthernet0/19 unassigned      YES unset  down        down
FastEthernet0/20 unassigned      YES unset  down        down
FastEthernet0/21 unassigned      YES unset  down        down
--More--

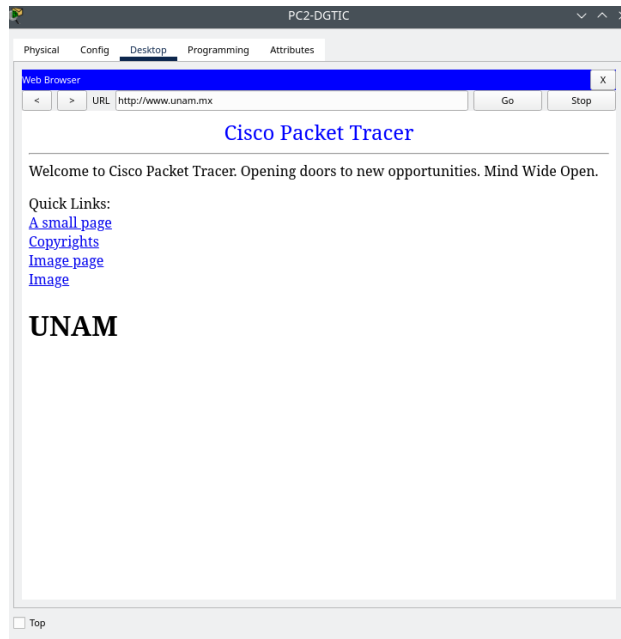
```

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Comandos ip route en los routers

19. Paginas web:





Paginas web

2 Cuestionario

1. Laptop: 10.10.0.4
Smartphone: 10.10.0.3
2. A-PC1: 192.168.10.5
A-PC2: 192.168.10.4
3. DHCP es un protocolo de red que permite asignar dinámicamente un ip, gateway, máscara a los dispositivos que soliciten una, lo que permite automatizar las configuraciones de ip de una red.

4. **NAT:** En traductor de ip que agarra una ip privada y la convierte a una ip pública o viceversa.
PAT: Es una versión dinámica de NAT donde varias ip privadas se conectan a internet usando solamente una ip pública.
5. Una netmask es una combinación de bits, cuya función es indicar a los dispositivos que parte de la ip está el número de la red, subred, etc.
6. Un Default Gateway es la ruta por defecto que se le asigna a un dispositivo.
7. Un SSID es una secuencia de 32 caracteres que sirve de nombre público de una red inalámbrica para poder diferenciarse de otras redes y otros dispositivos inalámbricos puedan comunicarse entre sí.
8. Un router hace lo siguiente:
 - Asignar direcciones locales.
 - Calcular la ruta de datos más rápida entre direcciones.
 - Filtrar paquetes en base a las reglas del administrador.
 - Actuar como servidor DHCP
 - Gestionar y establecer redes VPN seguras entre redes remotas.
9. Los protocolos de ruteo son un conjunto de reglas y convenciones que permiten a los routers o dispositivos de red intercambiar información sobre la topología de la red y tomar decisiones informadas sobre la mejor ruta para enviar paquetes de datos desde el origen hasta el destino a través de la red. Se dividen en dos categorías:
 - Estático
 - Dinámico
10. Una ruta estática es la configuración manual de rutas de red que no requieren de protocolos de enrutamiento dinámico.
11.
 - A - Es registro utilizado para asociar un nombre de dominio con una dirección IPv4.
 - NS - Especifica nombres autorizados para el dominio.
 - CNAME - Se utiliza para establecer una asociación entre un nombre de dominio y otro nombre de dominio canónico.
 - SOA - Contiene información fundamental sobre la zona, como el dominio principal, la dirección de correo electrónico del administrador, detalles sobre la zona secundaria, etc.