

Computer Networks

Lab Task #5

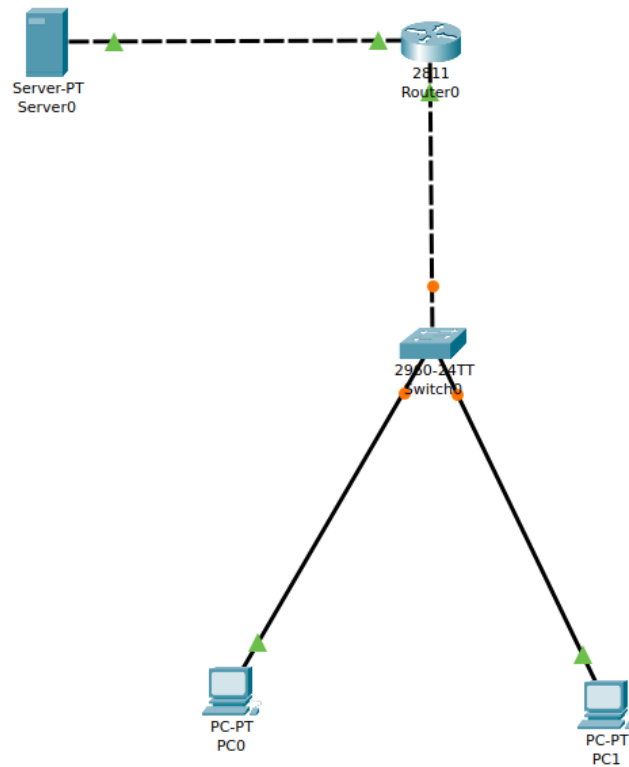
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20P-0051

# Task#1

Add 2x PCs, 1x Router and 1x Server.

Connect them with cables.



Now assign the static IP to the sever

**IP:** 192.168.1.2

**Subnet mask:** 255.255.255.0

**Default gateway:** 192.168.1.1

**IP Configuration**

☐ DHCP
 ☒ Static

IPv4 Address: 192.168.1.2

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.1.1

DNS Server:

Now we'll configure DHCP server pool.

Click on DHCP Server→Services→DHCP.

Turn ON the DHCP service on the server and create a pool.

**Pool Name: SALES**

**Default Gateway: 192.168.2.1**

**DNS server: 192.168.1.2**

**Start IP address: 192.168.2.0**

**Subnet Mask: 255.255.255.0**

**Maximum no. of Users: 255**

Physical Config **Services** Desktop Programming Attributes

**SERVICES**

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

**DHCP**

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: SALES

Default Gateway: 192.168.2.1

DNS Server: 192.168.1.2

Start IP Address : 192 168 2 0

Subnet Mask: 255 255 255 0

Maximum Number of Users : 255

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
SALES	192.168.2.1	192.168.1.2	192.168.2.0	255.255.255.0	255	0.0.0.0	0.0.0.0
serverPool	0.0.0.0	0.0.0.0	192.168.1.0	255.255.255.0	255	0.0.0.0	0.0.0.0

Now we will configuration the Router interfaces and we will add the helper ip address as well.

```
Router(config)#
Router(config)#
Router(config)#
Router(config)#
Router(config)#inter
Router(config)#interface fas
Router(config)#interface fastEthernet 0/0
Router(config-if)#192.168.2.1 255.255.255.0
      ^
% Invalid input detected at '^' marker.

Router(config-if)#ip addr192.168.2.1 255.255.255.0
Router(config-if)#ip addr 192.168.2.1 255.255.255.0
Router(config-if)#ip address 192.168.2.1 255.255.255.0
Router(config-if)#no hu
Router(config-if)#no shu
Router(config-if)#no shutdown
Router(config-if)#exi
Router(config-if)#exit
Router(config)#inter
Router(config)#interface fas
Router(config)#interface fastEthernet 0/1
Router(config-if)#ip addre
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shu
Router(config-if)#no shutdown
Router(config-if)#exi
Router(config-if)#exit
Router(config)#
Router(config)#inter
Router(config)#interface fas
Router(config)#interface fastEthernet 0/0
Router(config-if)#ip help
Router(config-if)#ip helper-address 192.168.1.2
Router(config-if)#exit
Router(config-if)#exit
Router(config)#|
```

And now enable DHCP on the PCs in SALES LAN. The PCs will obtain their address from the DHCP server.

PC0

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

InterfaceFastEthernet0

IP Configuration

☒ DHCP

☐ Static

DHCP request successful.

IPv4 Address

192.168.2.2

Subnet Mask

255.255.255.0

Default Gateway

192.168.2.1

DNS Server

192.168.1.2

PC1

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

InterfaceFastEthernet0

IP Configuration

☒ DHCP

☐ Static

DHCP request successful.

IPv4 Address

192.168.2.3

Subnet Mask

255.255.255.0

Default Gateway

192.168.2.1

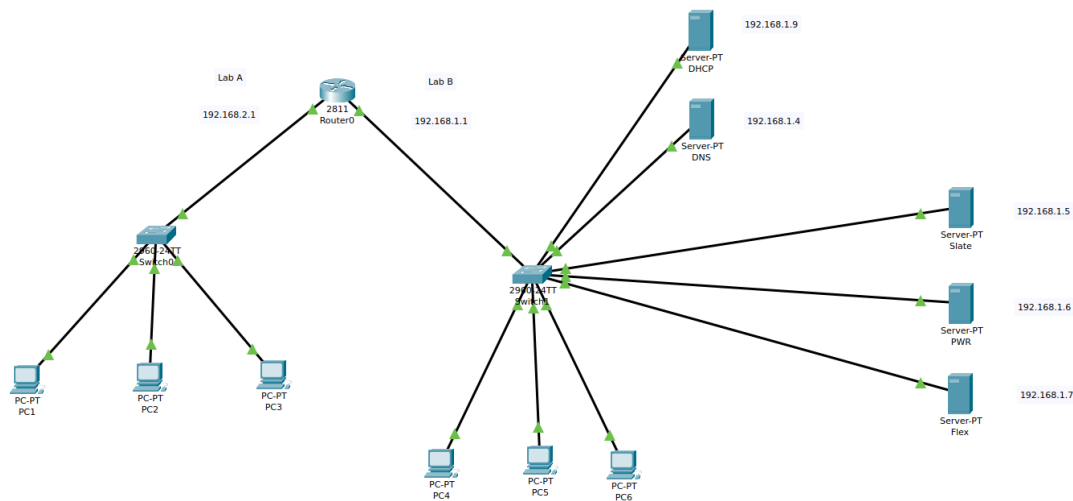
DNS Server

192.168.1.2

# Task #2

Add 6x PCs, 2x Switches, 1x Router and 5x Server.

And connect them with cables.



Three are the website servers:

- (www.slate.com ) having IP address 192.168.1.5
- (www.pwr.com ) having IP address 192.168.1.6
- (www.flex.com ) having IP address 192.168.1.7

Now assign the static IP to the DHCP Sever

**IP:** 192.168.1.9

**Subnet mask:** 255.255.255.0

**Default gateway:** 192.168.1.1

**DNS Server:** 192.168.1.4

IP Configuration

☐ DHCP ☒ Static

IPv4 Address	192.168.1.9
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	192.168.1.4

Now create two pools so for that click on DHCP Server→Services→DHCP.

Turn ON the DHCP service on the server and create a pool.

### **Pool #1**

**Pool Name:** serverPool (as Lab B)

**Default Gateway:** 192.168.1.1

**DNS server:** 192.168.1.4

**Start IP address:** 192.168.1.10

**Subnet Mask:** 255.255.255.0

**Maximum no. of Users:** 200

### **Pool #2**

**Pool Name:** Lab A

**Default Gateway:** 192.168.1.1

**DNS server:** 192.168.1.4

**Start IP address:** 192.168.2.0

**Subnet Mask:** 255.255.255.0

**Maximum no. of Users:** 200

Physical Config **Services** Desktop Programming Attributes

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

### DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 192.168.1.1

DNS Server: 192.168.1.4

Start IP Address : 192 168 1 10

Subnet Mask: 255 255 255 0

Maximum Number of Users : 200

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
Lab A	192.168.1.1	192.168.1.4	192.168.2.0	255.255.255.0	200	0.0.0.0	0.0.0.0
serverPool	192.168.1.1	192.168.1.4	192.168.1.10	255.255.255.0	200	0.0.0.0	0.0.0.0

Now assign the static IP to the DNS Server.

**IP:** 192.168.1.4

**Subnet mask:** 255.255.255.0

**Default gateway:** 192.168.1.1

**DNS Server:** 192.168.1.4

IP Configuration

☐ DHCP
 ☒ Static

IPv4 Address: 192.168.1.4

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.1.1

DNS Server: 192.168.1.4

Now we will record the data of the webserver so for that click on DNS Server→Services→DNS.



DNS

PhysicalConfigServicesDesktopProgrammingAttributes

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

Radius EAP

DNS

DNS Service

☒ On

☐ Off

Resource Records

NameType

A Record

Address

Add

Save

Remove

No.	Name	Type	Detail
0	www.flex.com	A Record	192.168.1.7
1	www.pwr.com	A Record	192.168.1.6
2	www.slate.com	A Record	192.168.1.5

Remember to turn “**ON**” the DNS Service

And now we will configure our router so for that go to the router and click CLI.

```
Router>en
Router>enable
Router#conf
Router#configure
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#host
Router(config)#hostname Saad
Saad(config)#inter
Saad(config)#interface fas
Saad(config)#interface FastEthernet 0/0
Saad(config-if)#ip addr
Saad(config-if)#ip address 192.168.2.1 255.255.255.0
Saad(config-if)#no shu
Saad(config-if)#no shutdown

Saad(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

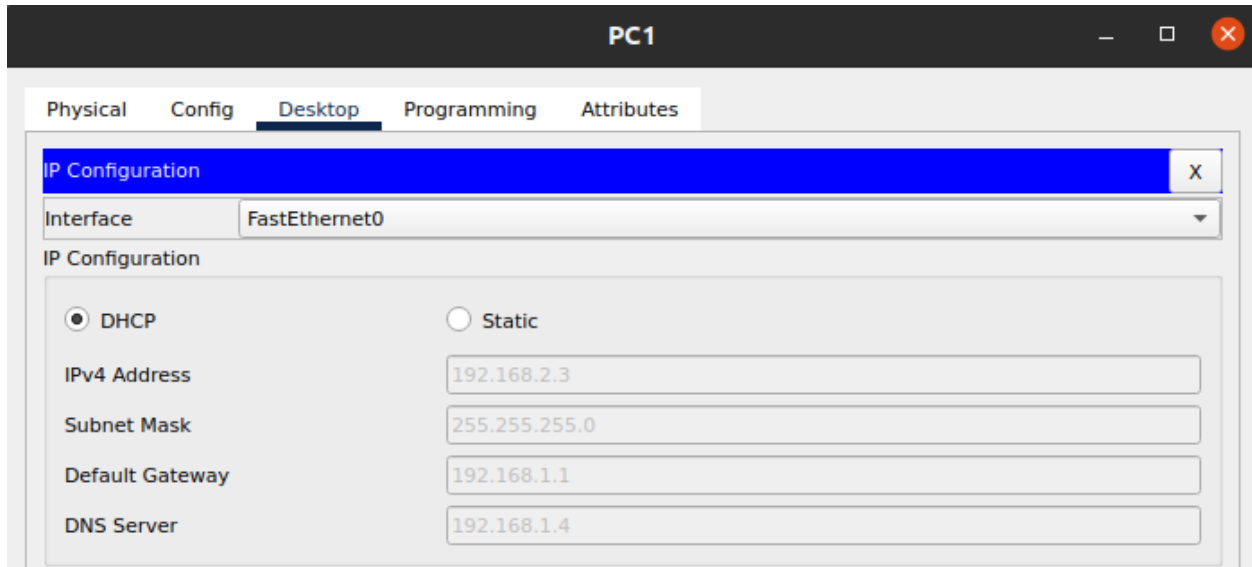
Saad(config-if)#exi
Saad(config-if)#exit
Saad(config)#inter
Saad(config)#interface fas
Saad(config)#interface FastEthernet 0/1
Saad(config-if)#ip addr
Saad(config-if)#ip address 192.168.1.1 255.255.255.0
Saad(config-if)#no shu
Saad(config-if)#no shutdown

Saad(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

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

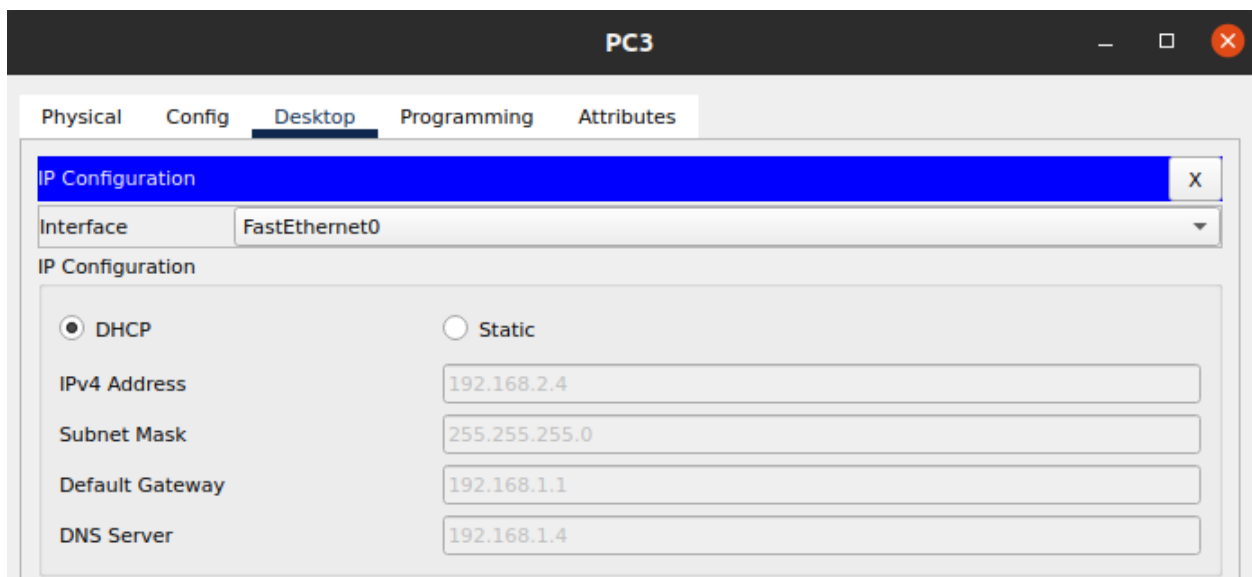
Saad(config-if)#Enter configuration commands, one per line. End with CNTL/Z.
Saad(config)#
Saad(config)#interface FastEthernet0/0
Saad(config-if)#
Saad(config-if)#exit
Saad(config)#interface FastEthernet0/1
Saad(config-if)#
Saad(config-if)#exit
Saad(config)#interface FastEthernet0/0
Saad(config-if)#
Saad(config-if)#exit
Saad(config)#interface FastEthernet0/1
Saad(config-if)#inter
Saad(config-if)#exi
Saad(config-if)#exit
Saad(config)#inter
Saad(config)#interface fast
Saad(config)#interface FastEthernet 0/0
Saad(config-if)#ip help
Saad(config-if)#ip helper-address 192.168.1.9
Saad(config-if)#exi
Saad(config-if)#exit
Saad(config)#exi
Saad(config)#exit
```

Now all of our devices are configured and we will assign the IPs to our PCs dynamically so for that enable DHCP on the PCs in Lab A and Lab B. The PCs will obtain their address from the DHCP server.



The screenshot shows the configuration window for PC1. The 'Desktop' tab is selected. The 'IP Configuration' section is highlighted in blue. The 'Interface' dropdown is set to 'FastEthernet0'. Under 'IP Configuration', the 'DHCP' radio button is selected, and the 'Static' radio button is unselected. The fields for IPv4 Address, Subnet Mask, Default Gateway, and DNS Server are filled with the values 192.168.2.3, 255.255.255.0, 192.168.1.1, and 192.168.1.4 respectively.

Interface	FastEthernet0
IP Configuration	
<input checked="" type="radio"/> DHCP	<input type="radio"/> Static
IPv4 Address	192.168.2.3
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	192.168.1.4



The screenshot shows the configuration window for PC3. The 'Desktop' tab is selected. The 'IP Configuration' section is highlighted in blue. The 'Interface' dropdown is set to 'FastEthernet0'. Under 'IP Configuration', the 'DHCP' radio button is selected, and the 'Static' radio button is unselected. The fields for IPv4 Address, Subnet Mask, Default Gateway, and DNS Server are filled with the values 192.168.2.4, 255.255.255.0, 192.168.1.1, and 192.168.1.4 respectively.

Interface	FastEthernet0
IP Configuration	
<input checked="" type="radio"/> DHCP	<input type="radio"/> Static
IPv4 Address	192.168.2.4
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	192.168.1.4

PC5

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static

IPv4 Address 192.168.1.11

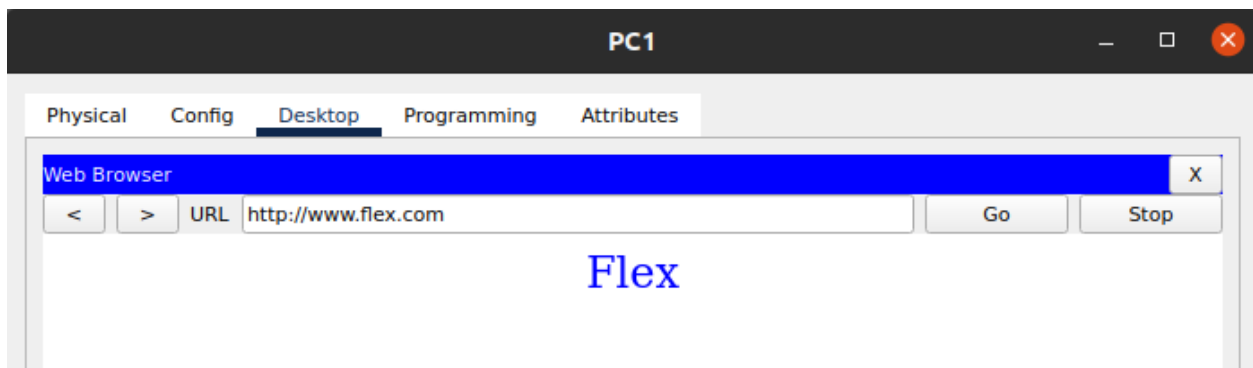
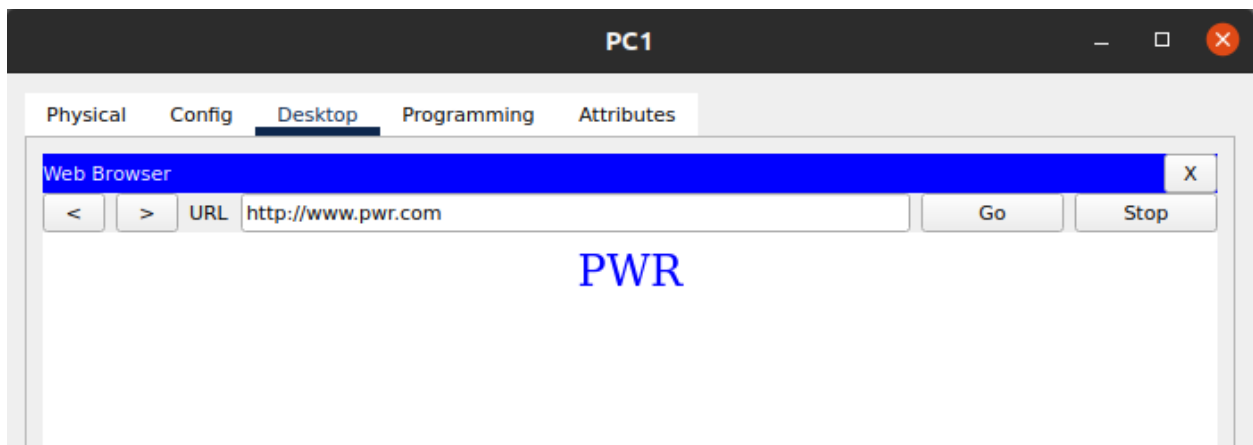
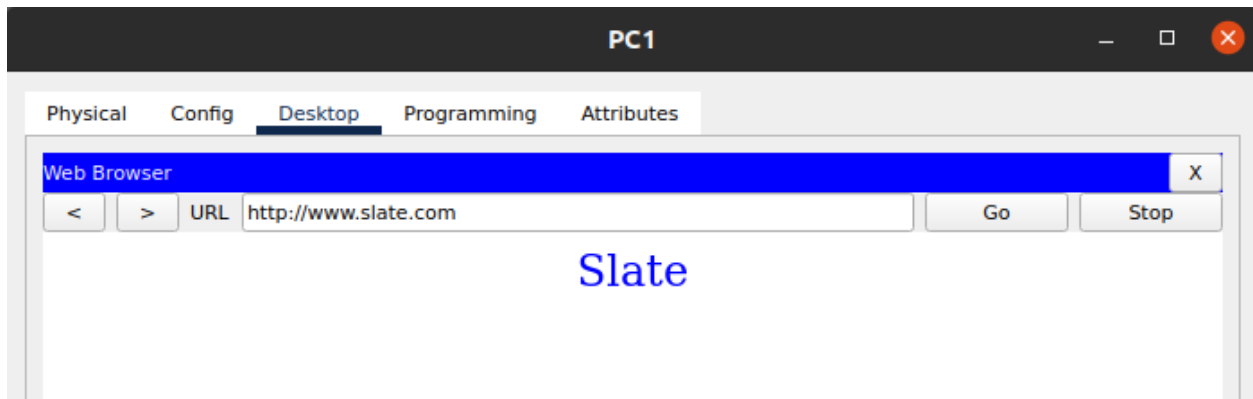
Subnet Mask 255.255.255.0

Default Gateway 192.168.1.1

DNS Server 192.168.1.4

**Results:**

## Lab A



## Lab B

