

Computer Networks

Lab Task #4

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# **Task 1**

First add 2 PCs and 1 switch and 1 server.

Then configure the PCs by assigning the IP address, subnet mask and DNS server IP like:

**PC1:**

IP = 192.168.1.3

Subnet mask = 255.255.255.0

DNS server = 192.168.1.2

**PC2:**

IP = 192.168.1.4

Subnet mask = 255.255.255.0

DNS server = 192.168.1.2

**DNS Server:**

IP = 192.168.1.2

Subnet mask = 255.255.255.0

DNS server = 192.168.1.2

Now go to the services tab of the DNS server and select DNS from the menu and then add the PCs record in it.

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 ▾

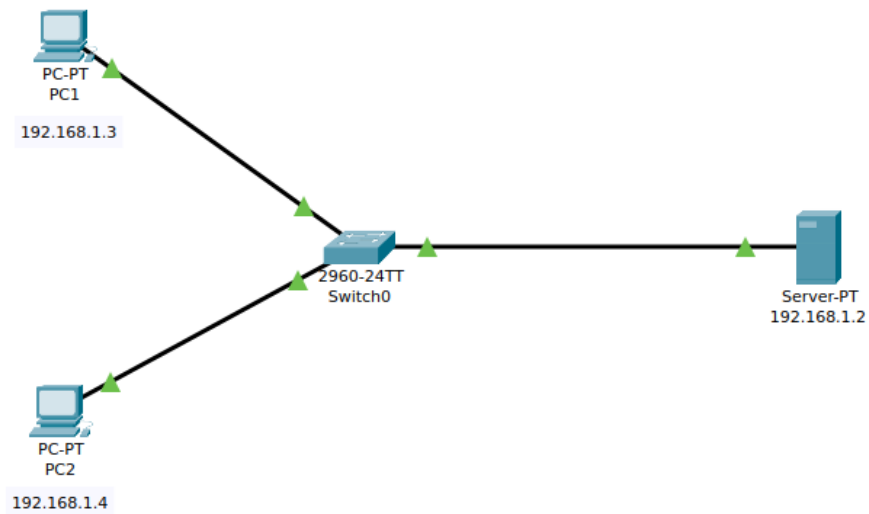
Address

Add Save Remove

No.	Name	Type	Detail
0	pc1	A Record	192.168.1.3
1	pc2	A Record	192.168.1.4

Remember to turn “**on**” the DNS service.

And now connect them all using the straight through cable.



## Result:

```
C:\>ping PC2

Pinging 192.168.1.4 with 32 bytes of data:

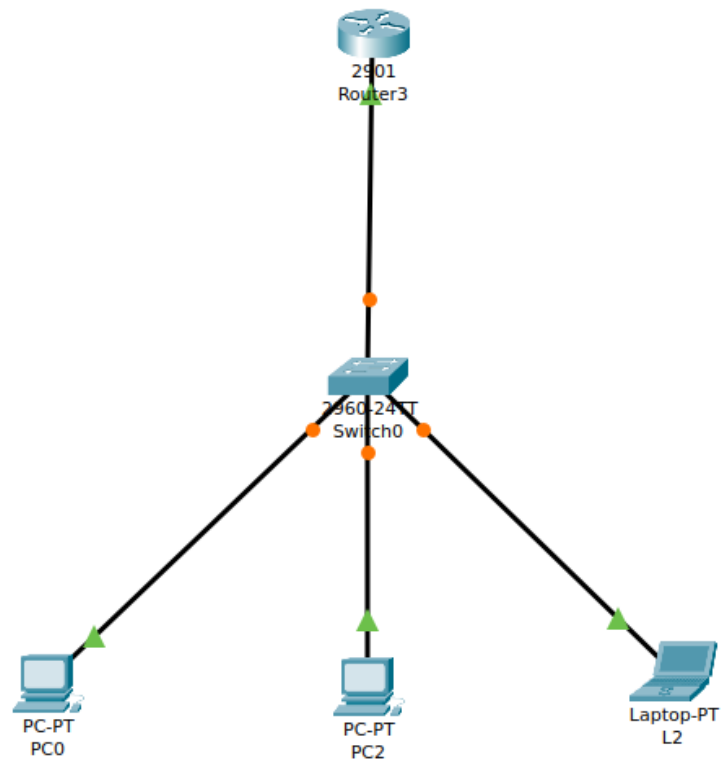
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=9ms TTL=128
Reply from 192.168.1.4: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 9ms, Average = 2ms

C:\>|
```

## Task 2

First add 3 PCs and 1 switch and 1 router.



Then configure the Router using CLI

```
Router>
Router>enab
Router>enable
Router#conf
Router#configure ter
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interf
Router(config)#interface Gig
Router(config)#interface GigabitEthernet 0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#no shi
Router(config-if)#no shu
Router(config-if)#no shutdown
Router(config-if)#|
```

Now we will configure DHCP server on the Router.

```
Router(config)#ip dhcp pool P1
Router(dhcp-config)#netwo
Router(dhcp-config)#network 192.168.1.1 255.255.255.0
Router(dhcp-config)#dns
Router(dhcp-config)#dns-server 192.168.1.10
Router(dhcp-config)#ec
      ^
% Invalid input detected at '^' marker.

Router(dhcp-config)#ec
Router(dhcp-config)#e
Router(dhcp-config)#exit
Router(config)#
```

And now connect them all using the straight through cable.

Now go to every PC and on their IP, configuration tabs, enable DHCP. Every PC should be able to obtain an IP address, default gateway and DNS server.

IP Configuration	
<input checked="" type="radio"/> DHCP	<input type="radio"/> Static
IPv4 Address	<input type="text" value="192.168.1.3"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>
Default Gateway	<input type="text" value="192.168.1.1"/>
DNS Server	<input type="text" value="192.168.1.10"/>

**Result:**

```
C:\>ping PC2

Pinging 192.168.1.4 with 32 bytes of data:

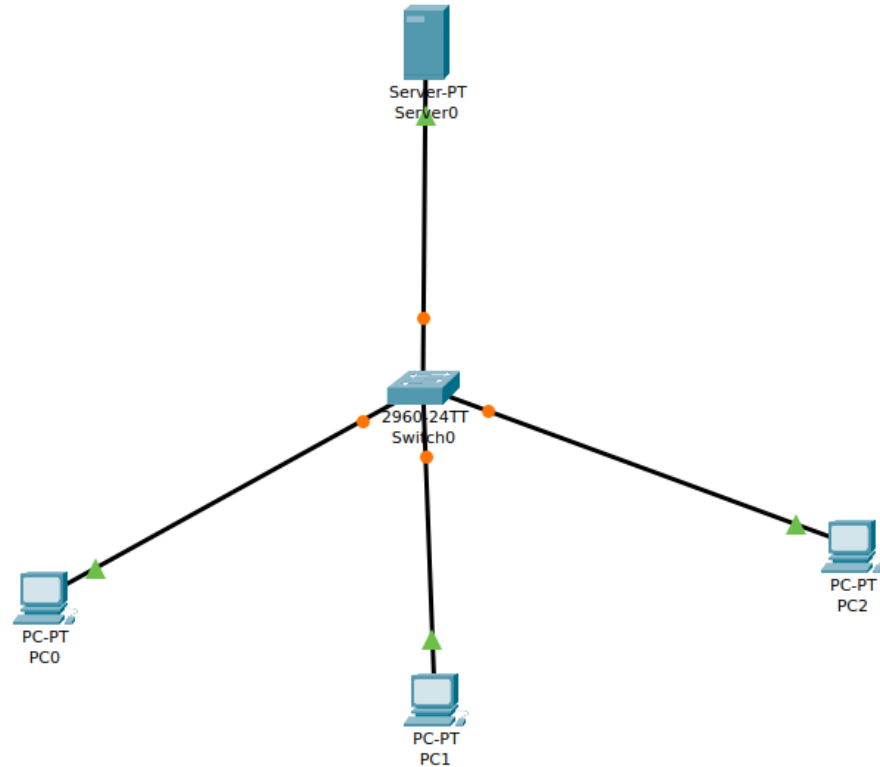
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=9ms TTL=128
Reply from 192.168.1.4: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 9ms, Average = 2ms

C:\>|
```

## **Task 3**

First add 3 PCs and 1 switch and 1 server



Now we will configure the server so for that assign the IP to the server and DNS server

**IP:**

192.168.1.2

**DNS:**

192.168.1.10

Now go to the service tab and select the DHCP from the menu. Then proceed to define the DHCP network parameters as follows:

**Pool name:** serverPool

**Default Gateway:** 192.168.1.1

**DNS Server:** 192.168.1.10

**Start IP Address:** 192.168.1.0



**Subnet Mask:** 255.255.255.0

**Maximum Number of users:** 245

and now save it.

DHCP

---

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 192.168.1.1

DNS Server: 192.168.1.10

Start IP Address : 192 168 1 0

Subnet Mask: 255 255 255 0

Maximum Number of Users : 245

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	192.16...	192.16...	192.16...	255.25...	245	0.0.0.0	0.0.0.0

Now go to every PC and on their IP, configuration tabs, enable DHCP. Every PC should be able to obtain an IP address, default gateway and DNS server.

IP Configuration

☒ DHCP ☐ Static

IPv4 Address

Subnet Mask

Default Gateway

DNS Server

## Result:

```
c:\>ping PC1

Pinging 192.168.1.3 with 32 bytes of data:

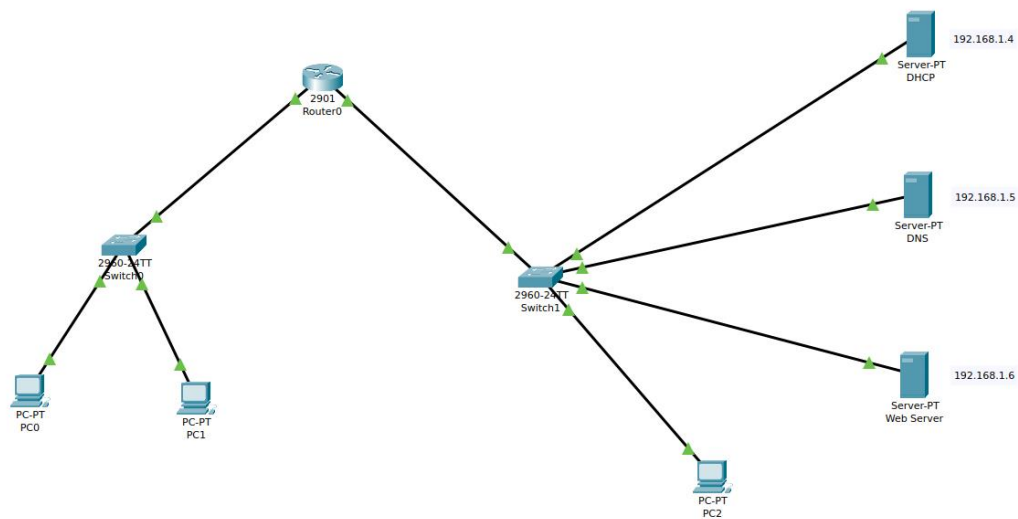
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time=1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

c:\>|
```

## Task 4

First add 3 PCs and 1 switch and 1 router and 3 servers



Now we will configure the servers first

### DHCP server:

IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	<input type="text" value="192.168.1.4"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>
Default Gateway	<input type="text" value="192.168.1.1"/>
DNS Server	<input type="text" value="192.168.1.5"/>

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: 192.168.1.5

Start IP Address : 192 168 1 0

Subnet Mask: 255 255 255 0

Maximum Number of Users : 240

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
serverPool	192.16...	192.16...	192.16...	255.25...	240	0.0.0.0	0.0.0.0

## DNS server:

IP Configuration

☐ DHCP
 ☒ Static

IPv4 Address: 192.168.1.5

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.1.1

DNS Server: 192.168.1.5

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.test.com	A Record	192.168.1.6

## Web server:

IP Configuration

☐ DHCP
☒ Static

IPv4 Address

Subnet Mask

Default Gateway

DNS Server

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)

Now configure the Router

```

Router>ena
Router>enable
Router#cof
Router#conf
Router#configure termi
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#interface GigabitEthernet0/0
Router(config-if)#ip add
Router(config-if)#ip address 192.168.2.1 255.255.255.0
Router(config-if)#no shut
Router(config-if)#no shutdown
Router(config-if)#ex
Router(config)#ip dhc
Router(config)#ip dhcp p
Router(config)#ip dhcp pool P1
Router(dhcp-config)#netwo
Router(dhcp-config)#network 192.168.2.0 255.255.255.0
Router(dhcp-config)#defa
Router(dhcp-config)#default-router 192.168.2.1
Router(dhcp-config)#dns
Router(dhcp-config)#dns-server 192.168.1.5
Router(dhcp-config)#ex
Router(config)#

```

Now go to every PC and on their IP, configuration tabs, enable DHCP. Every PC should be able to obtain an IP address, default gateway and DNS server.

IP Configuration

☒ DHCP
 ☐ Static

IPv4 Address	192.168.2.3
Subnet Mask	255.255.255.0
Default Gateway	192.168.2.1
DNS Server	192.168.1.5

**Result:**

