

Experiment - 3

- Aim:- To implement DHCP in a complex Network developed in Practical 2.

- Task to be done:- Build a basic network. Create the below design in Cisco Packet Tracer and applying OSPF routing protocols with DHCP Server.

- Procedure:-

- Open Cisco packet tracer
- Select the PC's switch and router's Server
- Two VLANs are configured on switch 0 with Router as default gateway.

* VLAN configuration of PC0 and PC2

Switch (config) # vlan 10

Switch (config) # switchport access vlan 10

Now assign Vlan 10 to F0/1

Switch (config) # interface Fast Ethernet 0/1

Switch (config-if) # switch access vlan 10

Switch (config-if) # exit

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Switch0

Physical Config Attributes

IOS Command Line Interface

```
Switch(config-if)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

Switch#

```
Switch#show vlan bri
Switch#show vlan brief
```

VLAN Name	Status	Ports
1 default	active	Fa0/5, Fa0/6, Fa0/7, Fa0/8 Fa0/9, Fa0/10, Fa0/11, Fa0/12 Fa0/13, Fa0/14, Fa0/15, Fa0/16 Fa0/17, Fa0/18, Fa0/19, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24
10 RNC	active	Fa0/1
20 RMA	active	Fa0/1
100 RNC	active	Fa0/4
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 unnet-default	active	

Switch#

Switch#show inter

Switch#show interfaces tru

Switch#show interfaces trunk

Port	Mode	Encapsulation	Status	Native vlan
Fa0/3	on	802.1q	trunking	1
Port	Vlans allowed on trunk			
Fa0/3	1-1005			
Port	Vlans allowed and active in management domain			
Fa0/3	1,10,20,100			
Port	Vlans in spanning tree forwarding state and not pruned			
Fa0/3	1,10,20,100			

Switch#

Switch1

Physical Config Attributes

IOS Command Line Interface

```
Switch(config-if)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

Switch#

```
Switch#show vl
Switch#show vlan bri
Switch#show vlan brief
```

VLAN Name	Status	Ports
1 default	active	Fa0/4, Fa0/5, Fa0/6, Fa0/7 Fa0/8, Fa0/9, Fa0/10, Fa0/11 Fa0/12, Fa0/13, Fa0/14, Fa0/15 Fa0/16, Fa0/17, Fa0/18, Fa0/19 Fa0/20, Fa0/21, Fa0/22, Fa0/23 Fa0/24
30 CC	active	Fa0/1
40 IOT	active	Fa0/2
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 unnet-default	active	

Switch#

Switch#show inter

Switch#show interfaces tru

Switch#show interfaces trunk

Port	Mode	Encapsulation	Status	Native vlan
Fa0/3	on	802.1q	trunking	1
Port	Vlans allowed on trunk			
Fa0/3	1-1005			
Port	Vlans allowed and active in management domain			
Fa0/3	1,30,40			
Port	Vlans in spanning tree forwarding state and not pruned			
Fa0/3	1,30,40			

Switch#

• Declare IP address on the DHCP management lab of the Server like on the picture below given in lab manual.

• Now to make this server as DHCP server we need to enable DHCP service on the server. To do so go to its services menu and select DHCP in which fill the entries as your requirements and turn on DHCP server by choosing the ON option from it.

- Config DHCP from Terminal :-

↳ config t

Router(config)# interface gig 0/0

Router(config-if)# help

Router(config-if)# ip helper-address 172.168.1.2

Similar Step for gig 0/1 and gig 0/2

• Now, check DHCP is working or not

• Now, do the configuration for OSPF routing for dividing the area.

- Configuration for OSPF

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```
Router(config)# router OSPF <Process id>
Router(config-router) network <network address>
< wild card mask> area.
```

- For part A (area 0)

1. Router0 (config) # router OSPF 100
2. Router0 (config-router) # network 10.0.0.0 0.255.255.255
area 0
3. Router0 (config-router) # network 192.0.0.0 0.0.0.255
area 0

- For Port B (area 1)

1. Router2 (config) # router OSPF 100.
2. Router2 (config-router) # network 20.0.0.0
0.255.255.255
3. Router2 (config-router) # network 192.0.0.0 0.0.0.255
area 2

- Conclusion :- Now, all the Servers are configured and we can assign ip to PCs using DHCP Server. Hence, routing is successfully completed.

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