



Faculty of Engineering and Applied Science

SOFE 3850U: Computer Networks

Lab 3: Basic DHCP, FTP and NAT Configuration

CRN: 74020

Group 3

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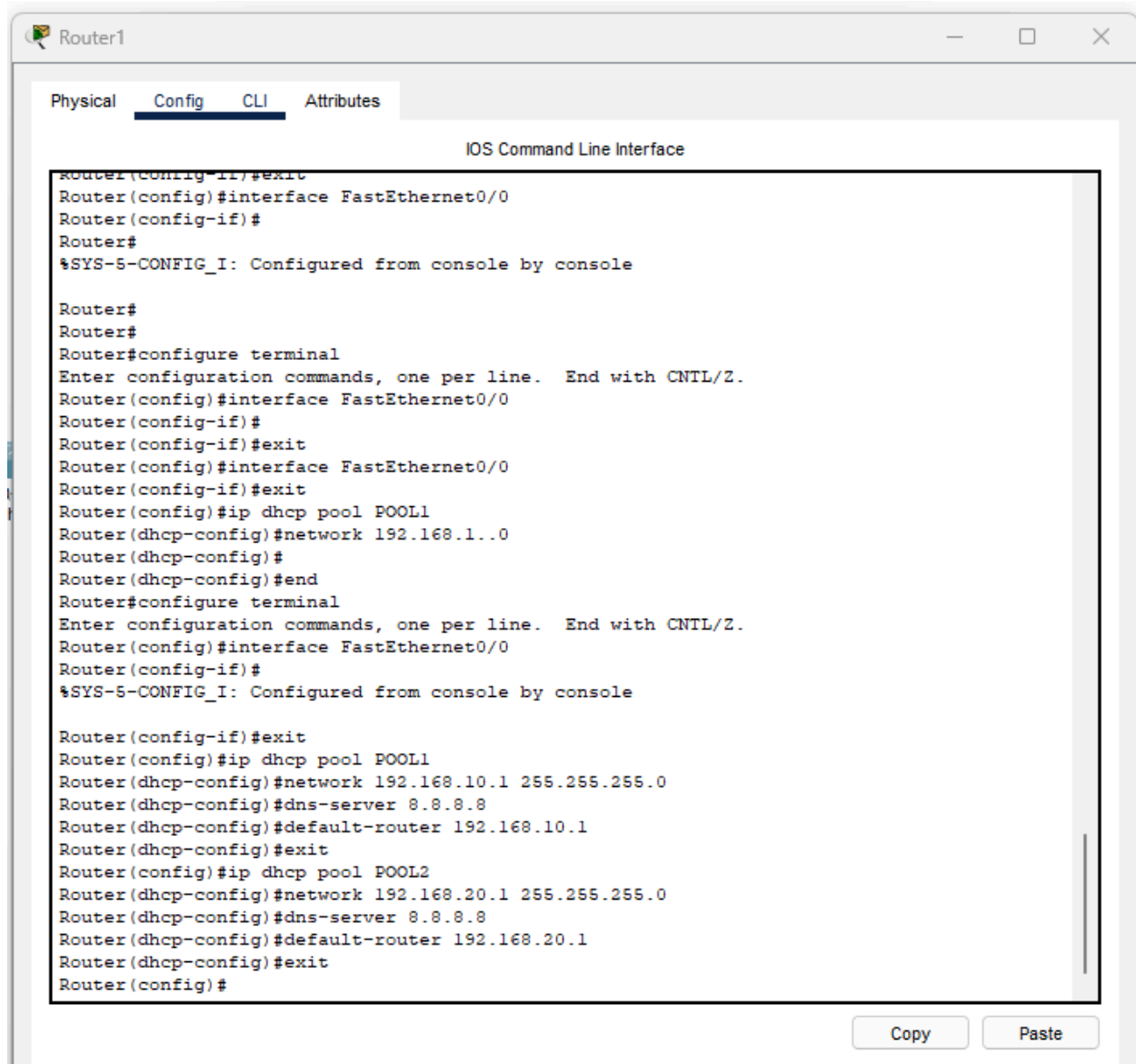
Group Member 4

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Task 1: DHCP

Configuring the DHCP with CLI commands:



```
Router1
Physical Config CLI Attributes
IOS Command Line Interface
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#exit
Router(config)#ip dhcp pool POOL1
Router(dhcp-config)#network 192.168.1.0
Router(dhcp-config)#
Router(dhcp-config)#end
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
%SYS-5-CONFIG_I: Configured from console by console

Router(config-if)#exit
Router(config)#ip dhcp pool POOL1
Router(dhcp-config)#network 192.168.10.1 255.255.255.0
Router(dhcp-config)#dns-server 8.8.8.8
Router(dhcp-config)#default-router 192.168.10.1
Router(dhcp-config)#exit
Router(config)#ip dhcp pool POOL2
Router(dhcp-config)#network 192.168.20.1 255.255.255.0
Router(dhcp-config)#dns-server 8.8.8.8
Router(dhcp-config)#default-router 192.168.20.1
Router(dhcp-config)#exit
Router(config)#
```

Copy Paste

Successful IP configurations:

PC0

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address 192.168.20.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.20.1

DNS Server 8.8.8.8

PC1

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address 192.168.20.3

Subnet Mask 255.255.255.0

Default Gateway 192.168.20.1

DNS Server 8.8.8.8

PC2

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address 192.168.10.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.10.1

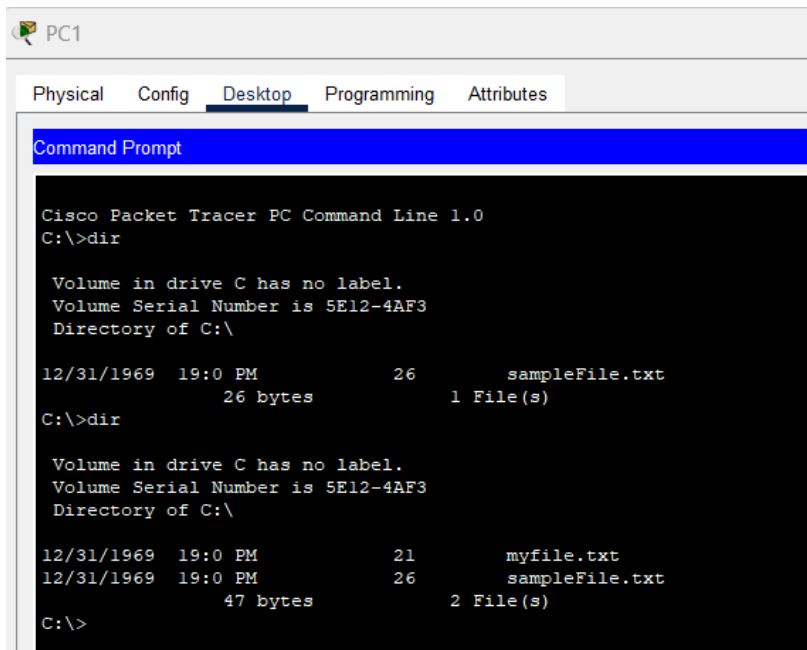
DNS Server 8.8.8.8

Result of typing **show ip dhcp binding**:

```
Router#show ip dhcp binding
IP address      Client-ID/      Lease expiration      Type
                Hardware address
192.168.20.2    000A.4114.1C7E  --                     Automatic
192.168.20.3    0050.0F34.9B79  --                     Automatic
Router#
```

Task 2:

Question 6: Please provide screenshot here.



```
12/31/1969  19:0 PM          4      myfile.txt
12/31/1969  19:0 PM          26     sampleFile.txt
          30 bytes          2 File(s)
```

```
C:\>ftp 192.168.10.11
Trying to connect...192.168.10.11
Connected to 192.168.10.11
220- Welcome to PT Ftp server
Username:administrator
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>dir
```

```
Listing /ftp directory from 192.168.10.11:
```

0	:	asa842-k8.bin	5571584
1	:	asa923-k8.bin	30468096
2	:	c1841-advipservicesk9-mz.124-15.T1.bin	33591768
3	:	c1841-ipbase-mz.123-14.T7.bin	13832032
4	:	c1841-ipbasek9-mz.124-12.bin	16599160
5	:	c1900-universalk9-mz.SPA.155-3.M4a.bin	33591768
6	:	c2600-advipservicesk9-mz.124-15.T1.bin	33591768
7	:	c2600-i-mz.122-28.bin	5571584
8	:	c2600-ipbasek9-mz.124-8.bin	13169700
9	:	c2800nm-advipservicesk9-mz.124-15.T1.bin	50938004
10	:	c2800nm-advipservicesk9-mz.151-4.M4.bin	33591768
11	:	c2800nm-ipbase-mz.123-14.T7.bin	5571584
12	:	c2800nm-ipbasek9-mz.124-8.bin	15522644
13	:	c2900-universalk9-mz.SPA.155-3.M4a.bin	33591768
14	:	c2950-i6q412-mz.121-22.EA4.bin	3058048
15	:	c2950-i6q412-mz.121-22.EA8.bin	3117390

Part 2 Screenshot

```
ftp>put myfile.txt

Writing file myfile.txt to 192.168.10.11:
File transfer in progress...

[Transfer complete - 4 bytes]

4 bytes copied in 0.153 secs (26 bytes/sec)
ftp>dir

Listing /ftp directory from 192.168.10.11:
0   : asa842-k8.bin                               5571584
1   : asa923-k8.bin                               30468096
2   : cl841-advipservicesk9-mz.124-15.T1.bin      33591768
3   : cl841-ipbase-mz.123-14.T7.bin               13832032
4   : cl841-ipbasek9-mz.124-12.bin                16599160
5   : cl900-universalk9-mz.SPA.155-3.M4a.bin      33591768
6   : c2600-advipservicesk9-mz.124-15.T1.bin      33591768
7   : c2600-i-mz.122-28.bin                       5571584
8   : c2600-ipbasek9-mz.124-8.bin                 13169700
9   : c2800nm-advipservicesk9-mz.124-15.T1.bin    50938004
10  : c2800nm-advipservicesk9-mz.151-4.M4.bin      33591768
11  : c2800nm-ipbase-mz.123-14.T7.bin             5571584
12  : c2800nm-ipbasek9-mz.124-8.bin               15522644
13  : c2900-universalk9-mz.SPA.155-3.M4a.bin      33591768
14  : c2950-i6q412-mz.121-22.EA4.bin             3058048
15  : c2950-i6q412-mz.121-22.EA8.bin             3117390
16  : c2960-lanbase-mz.122-25.FX.bin              4414921
17  : c2960-lanbase-mz.122-25.SEE1.bin            4670455
18  : c2960-lanbasek9-mz.150-2.SE4.bin            4670455
19  : c3560-advipservicesk9-mz.122-37.SE1.bin     8662192
20  : c3560-advipservicesk9-mz.122-46.SE.bin      10713279
21  : c800-universalk9-mz.SPA.152-4.M4.bin         33591768
22  : c800-universalk9-mz.SPA.154-3.M6a.bin        83029236
23  : cat3k_caa-universalk9.16.03.02.SPA.bin       505532849
24  : cgr1000-universalk9-mz.SPA.154-2.CG         159487552
25  : cgr1000-universalk9-mz.SPA.156-3.CG         184530138
26  : ir800-universalk9-bundle.SPA.156-3.M.bin     160968869
27  : ir800-universalk9-mz.SPA.155-3.M            61750062
28  : ir800-universalk9-mz.SPA.156-3.M            63753767
29  : ir800_yocto-1.7.2.tar                       2877440
30  : ir800_yocto-1.7.2_python-2.7.3.tar         6912000
31  : myfile.txt                                   4
32  : 
```

Part 3 Screenshot

```
Trying to connect...192.168.10.11
Connected to 192.168.10.11
220- Welcome to PT Ftp server
Username:administrator
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>dir

Listing /ftp directory from 192.168.10.11:
 0 : asa842-k8.bin                      5571584
 1 : asa923-k8.bin                      30468096
 2 : c1841-advipservicesk9-mz.124-15.T1.bin 33591768
 3 : c1841-ipbase-mz.123-14.T7.bin       13832032
 4 : c1841-ipbasek9-mz.124-12.bin        16599160
 5 : c1900-universalk9-mz.SPA.155-3.M4a.bin 33591768
 6 : c2600-advipservicesk9-mz.124-15.T1.bin 33591768
 7 : c2600-i-mz.122-28.bin              5571584
 8 : c2600-ipbasek9-mz.124-8.bin         13169700
 9 : c2800nm-advipservicesk9-mz.124-15.T1.bin 50938004
10 : c2800nm-advipservicesk9-mz.151-4.M4.bin 33591768
11 : c2800nm-ipbase-mz.123-14.T7.bin     5571584
12 : c2800nm-ipbasek9-mz.124-8.bin       15522644
13 : c2900-universalk9-mz.SPA.155-3.M4a.bin 33591768
14 : c2950-i6q412-mz.121-22.EA4.bin     3058048
15 : c2950-i6q412-mz.121-22.EA8.bin     3117390
16 : c2960-lanbase-mz.122-25.FX.bin     4414921
17 : c2960-lanbase-mz.122-25.SE1.bin     4670455
18 : c2960-lanbasek9-mz.150-2.SE4.bin    4670455
19 : c3560-advipservicesk9-mz.122-37.SE1.bin 8662192
20 : c3560-advipservicesk9-mz.122-46.SE.bin 10713279
21 : c800-universalk9-mz.SPA.152-4.M4.bin 33591768
22 : c800-universalk9-mz.SPA.154-3.M6a.bin 83029236
23 : cat3k_caa-universalk9.16.03.02.SPA.bin 505532849
24 : cgr1000-universalk9-mz.SPA.154-2.CG 159487552
25 : cgr1000-universalk9-mz.SPA.156-3.CG 184530138
26 : ir800-universalk9-bundle.SPA.156-3.M.bin 160968869
27 : ir800-universalk9-mz.SPA.155-3.M    61750062
28 : ir800-universalk9-mz.SPA.156-3.M    63753767
29 : ir800_yocto-1.7.2.tar              2877440
30 : ir800_yocto-1.7.2_python-2.7.3.tar 6912000
31 : myfile.txt                          4
32 : pt1000-i-mz.122-28.bin              5571584
33 : pt3000-i6q412-mz.121-22.EA4.bin     3117390
ftp>get myfile.txt

Reading file myfile.txt from 192.168.10.11:
File transfer in progress...

[Transfer complete - 4 bytes]

4 bytes copied in 0 secs
ftp>quit

221- Service closing control connection.
C:\>dir

Volume in drive C has no label.
Volume Serial Number is 5E12-4AF3
Directory of C:\

12/31/1969  19:0 PM          4      myfile.txt
12/31/1969  19:0 PM        26      sampleFile.txt
                30 bytes          2 File(s)
```

Task 3: NAT

1. Statically map a public IP address to a private IP address using:

```
R1(config)# ip nat inside source static private Address Public Address
```

Question 9 : Write NAT configuration code for statically mapping public IP to private IP address for R1 here as shown in above syntax.

```
R1(config)# ip nat inside source static 192.168.1.10 203.0.113.10
```

```
Router>
```

```
Router>enable
```

```
Router#configure terminal
```

```
Enter configuration command, One per line. End with CNTL/Z
```

```
Router (config) #ip nat inside source static 192.168.20.2  
192.168.10.100
```

```
Router (config) #ip nat inside source static 192.168.20.3  
192.168.10.110
```

```
Router (config) #ip nat inside source static 192.168.20.4  
192.168.10.120
```

2. Before NAT can work, you must specify which interfaces are inside and which interfaces are outside.

```
R1(config)# interface x
```

```
R1(config-if)# ip nat outside
```

```
R1(config)# interface y
```

```
R1(config-if)# ip nat inside
```

Question 10: Write NAT configuration for R1 as explain in above syntax

```
R1(config)# interface FastEthernet1/0
```

```
R1(config-if)# ip nat outside
```

```
R1(config)# interface FastEthernet0/0
```

```
R1(config-if)# ip nat inside
```

3. Use the command show ip nat translations. What do you see?

Question 11: Take snapshot.

Router# show ip nat translations

Pro	Inside global	Inside local	Outside local	Outside
global				
---	192.168.10.100	192.168.20.2	---	---
---	192.168.10.110	192.168.20.3	---	---
---	192.168.10.120	192.168.20.4	---	---