

LAB 7.4.1 BASIC DHCP AND NAT CONFIGURATION
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TASK 2: PERFORM BASIC ROUTER CONFIGURATIONS

```
Router(config)#hostname R1
R1(config)#no ip domain lookup
R1(config)#enable secret class
R1(config)#banner motd #keep out#
R1(config)#line console 0
R1(config-line)#password cisco
R1(config-line)#login
R1(config-line)#line vty 0 4
R1(config-line)#password cisco
R1(config-line)#login
R1(config)#int s0/0/0
R1(config-if)#ip address 10.1.1.1 255.255.255.252
R1(config-if)#clock rate 64000
R1(config-if)#no shut
R1(config-if)#int fa0/0
R1(config-if)#ip address 192.168.10.1 255.255.255.0
R1(config-if)#no shut
R1(config-if)#int fa0/1
R1(config-if)#ip address 192.168.11.1 255.255.255.0
R1(config-if)#no shut
R1(config)#router ospf 1
R1(config-router)#network 192.168.10.0 0.0.0.255 area 0
R1(config-router)#network 192.168.11.0 0.0.0.255 area 0
R1(config-router)#network 10.1.1.0 0.0.0.3 area 0


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Router(config)#hostname R2
R2(config)#no ip domain-lookup
R2(config)#banner motd #keep out!#
R2(config)#line con 0
R2(config-line)#logging synchronous
R2(config-line)#password cisco
R2(config-line)#login
R2(config-line)#line vty 0 4
R2(config-line)#password cisco
R2(config-line)#login
R2(config-line)#int fa0/0
R2(config-if)#ip address 192.168.20.1 255.255.255.0
R2(config-if)#no shut
R2(config-if)#int s0/0/0
R2(config-if)#ip address 10.1.1.2 255.255.255.252
R2(config-if)#no shut
R2(config-if)#int s0/0/1
R2(config-if)#ip address 209.165.200.225 255.255.255.252
R2(config-if)#clock rate 64000
R2(config-if)#no shut
R2(config)#router ospf 1
R2(config-router)#network 10.1.1.0 0.0.0.3 area 0
R2(config-router)#network 192.168.20.0 0.0.0.255 area 0


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Router(config)#hostname ISP
ISP(config)#int s0/0/1
ISP(config-if)#ip address 209.165.200.226 255.255.255.252
ISP(config-if)#no shut
ISP(config)#no ip domain-lookup
ISP(config)#banner motd #keep out#
ISP(config)#line con 0
ISP(config-line)#logging synchronous
```

```
ISP(config-line)#password cisco
ISP(config-line)#login
ISP(config-line)#line vty 04
ISP(config-line)#password cisco
ISP(config-line)#login
```

TASK 3: CONFIGURE PC1 AND PC2 TO RECEIVE AN IP ADDRESS THROUGH DHCP

Obtain an IP address automatically

Use the following IP address:

IP address:	<input type="text" value="."/> <input type="text" value="."/> <input type="text" value="."/>
Subnet mask:	<input type="text" value="."/> <input type="text" value="."/> <input type="text" value="."/>
Default gateway:	<input type="text" value="."/> <input type="text" value="."/> <input type="text" value="."/>

TASK 4: CONFIGURE A CISCO IOS DHCP SERVER

STEP 1) EXCLUDE STATICALLY ASSIGNED ADDRESSES

```
R2(config)# ip dhcp excluded-address 192.168.10.1 192.168.10.10
R2(config)# ip dhcp excluded-address 192.168.11.1 192.168.11.10
```

STEP 2) CONFIGURE THE POOL

```
R2(config)# ip dhcp pool R1Fa0
R2(dhcp-config)# network 192.168.10.0 255.255.255.0
R2(dhcp-config)# dns-server 192.168.11.5
R2(dhcp-config)# default-router 192.168.10.1
R2(config)# ip dhcp pool R1Fa1
R2(dhcp-config)# network 192.168.11.0 255.255.255.0
R2(dhcp-config)# dns-server 192.168.11.5
R2(dhcp-config)# default-router 192.168.11.1
```

STEP 3) TEST DHCP

```
C:\Users\Network Lab>ipconfig
Connection-specific DNS Suffix . . . :
Link-local IPv6 Address . . . . . : fe80::3c46:989f:c2ab:78f0%14
Autoconfiguration IPv4 Address. . . : 169.254.120.240
Subnet Mask . . . . . : 255.255.0.0
Default Gateway . . . . . :
```

WHAT IS THE RESULT OF YOUR TEST? NO IP ADDRESS HAS BEEN AUTOMATICALLY OBTAINED. I CAN TELL THAT IT HAS NOT BEEN OBTAINED BECAUSE ITS ADDRESS BEGINS WITH 169.254.
WHY IS THIS THE RESULT? AN IP HELPER ADDRESS NEEDS TO BE CONFIGURED

STEP 4) CONFIGURE A HELPER ADDRESS

```
R1(config)#int fa0/0
R1(config-if)#ip helper-address 10.1.1.2
```

```
R1(config-if)#int fa0/1
R1(config-if)#ip helper-address 10.1.1.2
```

STEP 5) RELEASE AND RENEW THE IP ADDRESSES ON PC1 AND PC2

<p><u>PC1:</u> C:\Users\Network Lab>ipconfig /renew IPv4 Address.: 192.168.10.12 Subnet Mask: 255.255.255.0 Default Gateway: 192.168.10.1</p>	<p><u>PC2:</u> C:\Users\Network Lab>ipconfig/renew IPv4 Address.: 192.168.11.11 Subnet Mask: 255.255.255.0 Default Gateway: 192.168.11.1</p>
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STEP 6) VERIFY THE DHCP CONFIGURATIONS

```
R2(config)#do show ip dhcp pool
```

```
Pool R1fa0 :
Utilization mark (high/low)      : 100 / 0
Subnet size (first/next)         : 0 / 0
Total addresses                   : 254
Leased addresses                  : 2
Pending event                     : none
1 subnet is currently in the pool :
Current index      IP address range      Leased addresses
192.168.10.13     192.168.10.1 - 192.168.10.254    2
```

```
Pool R1fa1 :
Utilization mark (high/low)      : 100 / 0
Subnet size (first/next)         : 0 / 0
Total addresses                   : 254
Leased addresses                  : 1
Pending event                     : none
1 subnet is currently in the pool :
Current index      IP address range      Leased addresses
192.168.11.12     192.168.11.1 - 192.168.11.254    1
```

```
R2(config)#
```

TASK 5: CONFIGURE STATIC AND DEFAULT ROUTING

```
R2(config)# ip route 0.0.0.0 0.0.0.0 209.165.200.226
R2(config)# router ospf 1
R2(config-router)# default-information originate
```

TASK 6: CONFIGURE STATIC NAT

STEP 1) STATICALLY MAP A PUBLIC IP ADDRESS TO A PRIVATE IP ADDRESS

```
R2(config)# ip nat inside source static 192.168.20.254 209.165.200.254
```

STEP 2)

```
R2(config)# interface serial 0/0/1
R2(config-if)# ip nat outside
R2(config-if)# interface fa0/0
R2(config-if)# ip nat inside
```

TASK 7: CONFIGURE DYANMIC NAT WITH A POOL OF ADDRESSES

STEP 1)

```
R2(config)# ip nat pool MY-NAT-POOL 209.165.200.241 209.165.200.246 netmask  
255.255.255.248
```

STEP 2)

```
R2(config)# ip access-list extended NAT  
R2(config-ext-nacl)# permit ip 192.168.10.0 0.0.0.255 any  
R2(config-ext-nacl)# permit ip 192.168.11.0 0.0.0.255 any
```

STEP 3)

```
R2(config)# ip nat inside source list NAT pool MY-NAT-POOL
```

STEP 4)

```
R2(config)# interface serial 0/0/0  
R2(config-if)# ip nat inside
```