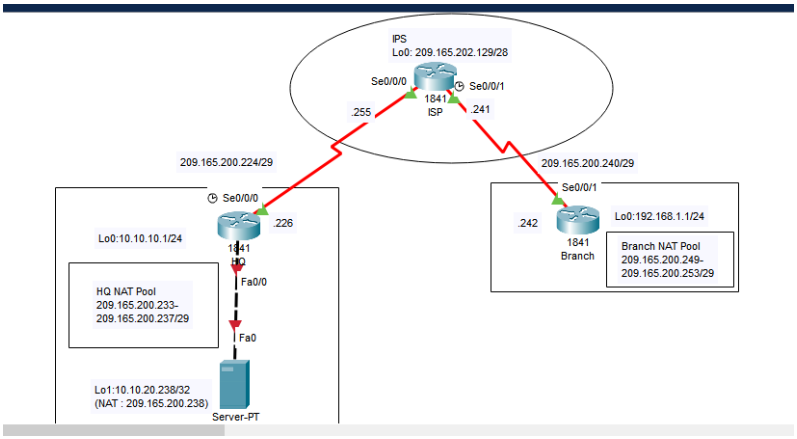
PRATICAL 7



//topology

Step1->Addressing loopback on routers

```
HQ#en
HQ#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
HQ(config)#int Lo0

HQ(config-if)#
%LINK-5-CHANGED: Interface Loopback0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to up

HQ(config-if)#ip add 10.10.10.1 255.255.255.0
HQ(config-if)#int Lo1

HQ(config-if)#
%LINK-5-CHANGED: Interface Loopback1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback1, changed state to up

HQ(config-if)#ip add 10.10.20.138 255.255.255.255
HQ(config-if)#int Se0/0/0
HQ(config-if)#ip add 209.165.200.226 255.255.255.248
HQ(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
HQ(config-if)#
```

//step1

```
ISP>en
ISP#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
ISP(config)#int Lo0

ISP(config-if)#
%LINK-5-CHANGED: Interface Loopback0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to up

ISP(config-if)#ip add 209.165.202.129 255.255.255.240
ISP(config-if)#int Se0/0/0
ISP(config-if)#ip add 209.165.200.225 255.255.255.248
ISP(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
ISP(config-if)#int Se0/0/1
ISP(config-if)#ip add 209.165.200.241 255.255.255.248
ISP(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/0/1, changed state to down
ISP(config-if)#
```

```
ISP>en
ISP#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
ISP(config)#ip route 209.165.200.232 255.255.255.248
% Incomplete command.
ISP(config)#ip route 209.165.200.232 255.255.255.248 Se0/0/0
ISP(config)#ip route 209.165.200.248 255.255.255.248 Se0/0/1
ISP(config)#S
```

//step2-> conf default static rout on branch n hq

Hq router

```
HQ>en
HQ#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
HQ(config)#ip route 0.0.0.0 0.0.0.0 209.165.200.225
HQ(config)#
```

Branch router

```
Branch>en
Branch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Branch(config)#ip route 0.0.0.0 0.0.0.0 209.165.200.241
Branch(config)#
```

Ping routers

```
Branch#ping 209.165.200.226

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 209.165.200.226, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/8/20 ms

Branch#
```

//step3-> Configure NAT on the HQ router.

```
HQ>en
HQ#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
HQ(config)#ip access-list extended HQ-NAT-ACL
HQ(config-ext-nacl)#remark Permit Local LAN to use NAT
HQ(config-ext-nacl)#permit ip 10.10.10.0 0.0.0.255 any
HQ(config-ext-nacl)#exit
HQ(config)#ip nat pool HQ-NAT-POOL 209.165.200.233 209.165.200.237 netmask
255.255.255.248
HQ(config)#ip nat inside source list HQ-NAT-ACL pool HQ-NAT-POOL
HQ(config)#zz
```

Giving static ip address for email server

```
HQ(config)#
HQ(config)#ip nat pool HQ-NAT-POOL 209.165.200.233 209.165.200.237 netmask
255.255.255.248
HQ(config)#ip nat inside source list HQ-NAT-ACL pool HQ-NAT-POOL
HQ(config)#ip nat inside source static 10.10.20.238 209.165.200.238
```

```
HQ(config)#int Lo0
HQ(config-if)#ip nat inside
HQ(config-if)#exit
HQ(config)#int Lo1
HQ(config-if)#ip nat inside
HQ(config-if)#exit
HQ(config)#int se0/0/0
HQ(config-if)#ip nat outside
HQ(config-if)#exit
HQ(config)#
```

//step4 -> Configure NAT on the Branch router.

```
Branch>en
Branch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Branch(config)#ip access-list extended B
Branch(config)#ip access-list extended BRANCH -NAT-ACL
                                              ^
% Invalid input detected at '^' marker.

Branch(config)#ip access-list extended BRANCH-NAT-ACL
Branch(config-ext-nacl)#remark permit local LAN to use NAT
Branch(config-ext-nacl)#permit ip 192.168.1.0 0.0.0.255 any
Branch(config-ext-nacl)#exit
Branch(config)#
Branch(config)#ip nat pool BRANCH-NAT-POOL 209.165.200.249 209.165.200.254 netmask
255.255.255.248
Branch(config)#ip nat inside source list BRANCH-NAT-ACL pool BRANCH-NAT-POOL
Branch(config)#
Branch(config)#int Lo0
Branch(config-if)#ip nat inisde
                     ^
% Invalid input detected at '^' marker.

Branch(config-if)#ip nat inside
Branch(config-if)#exit
Branch(config)#int se0/0/1
Branch(config-if)#ip nat outside
Branch(config-if)#exit
Branch(config)#
```

//step5-> Ping all routers HQ and ISP along with their Loopback addresses.

```
Branch#ping 209.165.200.241

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 209.165.200.241, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/9/41 ms

Branch#ping 209.165.202.129

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 209.165.202.129, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/3/10 ms

Branch#ping 209.165.200.226

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 209.165.200.226, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/7/18 ms

Branch#
```

In simulation mode send packets between two routers and view the inbound-pdu