

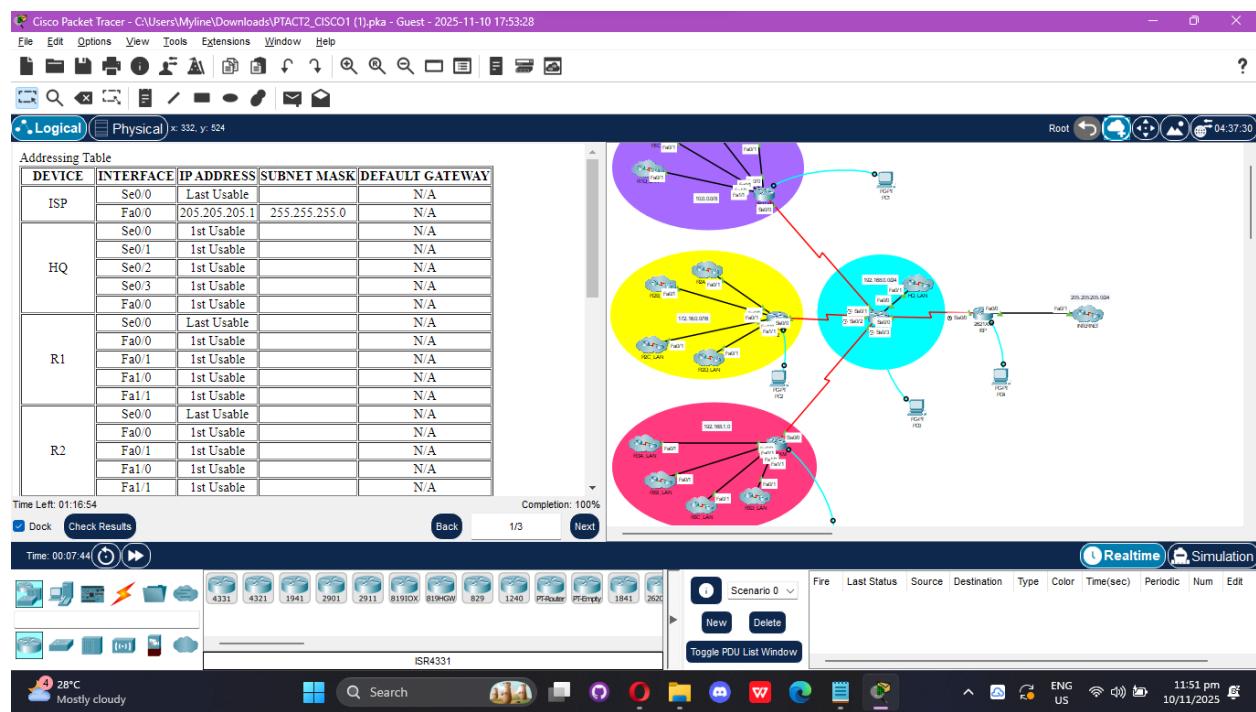
Data and Digital Communications

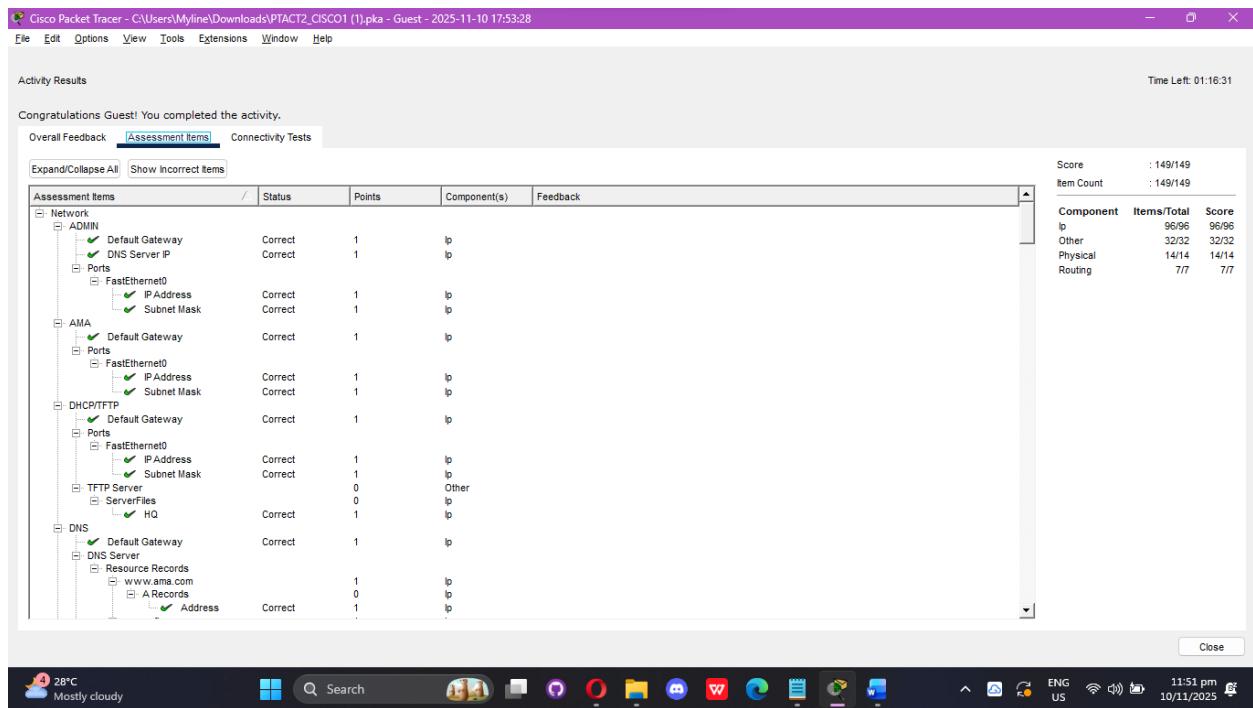
PTACT2

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BSCPE 3-3

Output Screenshots:





Source Codes:

===== TASK 1 =====

Connect the wires

===== TASK 2 =====

```
| CONFIGURE IN ROUTER1 |
a. R1A_LAN → SN2 → 10.16.0.0/13
en
config t
int fa0/0
ip add 10.16.0.1 255.248.0.0
no sh
```

b. R1B_LAN → SN6 → 10.48.0.0/13

```
int fa0/1
```

```
ip add 10.48.0.1 255.248.0.0
```

```
no sh
```

```
c. R1C_LAN → SN11 → 10.88.0.0/13
```

```
int fa1/0
```

```
ip add 10.88.0.1 255.248.0.0
```

```
no sh
```

```
d. R1D_LAN → SN19 → 10.152.0.0/13
```

```
int fa1/1
```

```
ip add 10.152.0.1 255.248.0.0
```

```
no sh
```

```
e. R1 > HQ 192.168.0.64 /27
```

```
int s0/0
```

```
ip add 192.168.0.94 255.255.255.224
```

```
no sh
```

```
do wr
```

```
| CONFIGURE IN ROUTER2 |
```

```
a. R2A_LAN → SN1 → 172.16.16.0/20
```

```
en
```

```
config t
```

```
int fa0/0
```

```
ip add 172.16.16.1 255.255.240.0
```

```
no sh
```

```
b. R2B_LAN → SN4 → 172.16.64.0/20
```

```
int fa0/1
```

```
ip add 172.16.64.1 255.255.240.0
```

```
no sh

c. R2C_LAN → SN8 → 172.16.128.0/20
int fa1/0
ip add 172.16.128.1 255.255.240.0
no sh

d. R2D_LAN → SN12 → 172.16.192.0/20
int fa1/1
ip add 172.16.192.1 255.255.240.0
no sh

e. R2 > HQ 192.168.0.96 /27
int s0/0
ip add 192.168.0.126 255.255.255.224
no sh
do wr

| CONFIGURE IN ROUTER3 |

a. R3A_LAN → SN0 → 192.168.1.0/26
en
config t
int fa0/0
ip add 192.168.1.1 255.255.255.192
no sh

b. R3B_LAN → SN1 → 192.168.1.64/26
int fa0/1
ip add 192.168.1.65 255.255.255.192
no sh
```

c. R3C_LAN → SN2 → 192.168.1.128/26
int fa1/0
ip add 192.168.1.129 255.255.255.192
no sh

d. R3D_LAN → SN3 → 192.168.1.192/26
int fa1/1
ip add 192.168.1.193 255.255.255.192
no sh

e. R3 > HQ 192.168.0.128 /26
int s0/0
ip add 192.168.0.158 255.255.255.224
no sh
do wr

| CONFIGURE IN HQ ROUTER |
a. HQ to ISP → SN1 → 192.168.0.32/27
en
config t
int s0/0
ip add 192.168.0.33 255.255.255.224
no sh

b. HQ to R1 → SN2 → 192.168.0.64/27
int s0/1
ip add 192.168.0.65 255.255.255.224
no sh

c. HQ to R2 → SN3 → 192.168.0.96/27

```
int s0/2
ip add 192.168.0.97 255.255.255.224
no sh
```

d. HQ to R3 → SN4 → 192.168.0.128/27

```
int s0/3
ip add 192.168.0.129 255.255.255.224
no sh
```

e. HQ_LAN → SN6 → 192.168.0.192/27

```
int fa0/0
ip add 192.168.0.193 255.255.255.224
no sh
do wr
```

a. ISP > HQ 192.168.0.32 /24

```
en
config t
int s0/0
ip add 192.168.0.62 255.255.255.224
no sh
```

b. ISP to Internet

```
int fa0/0
ip add 205.205.205.1 255.255.255.0
no sh
do wr
```

===== TASK 3: BASIC SECURITY =====

--- HQ ---

```
en
config t
hostname HQ
no ser pass
no ip domain-lookup
line con 0
pass sheenamae
logging synchronous
login
line vty 0 4
pass delima
login
exit
enable pass 04/16/2005
ena sec 2023-05210-MN-0
banner motd #WELCOME TO NETWORKING. STUDY HARD AND PERSEVERE!#
do wr
```

```
--- R1 ---
en
config t
hostname R1
no ser pass
no ip domain-lookup
line con 0
pass sheenamae
logging synchronous
login
line vty 0 4
pass delima
login
```

```
exit
enable pass 04/16/2005
ena sec 2023-05210-MN-0
banner motd #WELCOME TO NETWORKING. STUDY HARD AND PERSEVERE!#
do wr
```

--- R2 ---

```
en
config t
hostname R2
no ser pass
no ip domain-lookup
line con 0
pass sheenamae
logging synchronous
login
line vty 0 4
pass delima
login
exit
enable pass 04/16/2005
ena sec 2023-05210-MN-0
banner motd #WELCOME TO NETWORKING. STUDY HARD AND PERSEVERE!#
do wr
```

--- R3 ---

```
en
config t
hostname R3
no ser pass
no ip domain-lookup
```

```
line con 0
pass sheenamae
logging synchronous
login
line vty 0 4
pass delima
login
exit
enable pass 04/16/2005
ena sec 2023-05210-MN-0
banner motd #WELCOME TO NETWORKING. STUDY HARD AND PERSEVERE!#
do wr

-- ISP --
en
config t
hostname ISP
no ser pass
no ip domain-lookup
line con 0
pass sheenamae
logging synchronous
login
line vty 0 4
pass delima
login
exit
enable pass 04/16/2005
ena sec 2023-05210-MN-0
banner motd # WELCOME TO NETWORKING. STUDY HARD AND PERSEVERE! #
do wr
```

===== TASK 4: CREATING DHCP =====

DHCP/TFTP

IP Add: 192.168.0.196

Subnet: 255.255.255.224

Gateway: 192.168.0.193

PoolName: R1A_LAN

Gateway: 10.16.0.1

SM: 255.248.0.0

DNS: 192.168.0.195

Max users: 200

10th Usable IP: 10.16.0.10

PoolName: R1B_LAN

Gateway: 10.48.0.1

SM: 255.248.0.0

DNS: 192.168.0.195

Max users: 200

10th Usable IP: 10.48.0.10

PoolName: R1C_LAN

Gateway: 10.88.0.1

SM: 255.248.0.0

DNS: 192.168.0.195

Max users: 200

10th Usable IP: 10.88.0.10

PoolName: R1D_LAN

Gateway: 10.152.0.1
SM: 255.248.0.0
DNS: 192.168.0.195
Max users: 200
10th Usable IP: 10.152.0.10

PoolName: R2A_LAN
Gateway: 172.16.16.1
SM: 255.255.240.0
DNS: 192.168.0.195
Max users: 100
10th Usable IP: 172.16.16.10

PoolName: R2B_LAN
Gateway: 172.16.64.1
SM: 255.255.240.0
DNS: 192.168.0.195
Max users: 100
10th Usable IP: 172.16.64.10

PoolName: R2C_LAN
Gateway: 172.16.128.1
SM: 255.255.240.0
DNS: 192.168.0.195
Max users: 100
10th Usable IP: 172.16.128.10

PoolName: R2D_LAN
Gateway: 172.16.192.1
SM: 255.255.240.0
DNS: 192.168.0.195

Max users: 100

10th Usable IP: 172.16.192.10

PoolName: R3A_LAN

Gateway: 192.168.1.1

SM: 255.255.255.192

DNS: 192.168.0.195

Max users: 50

10th Usable IP: 192.168.1.10

PoolName: R3B_LAN

Gateway: 192.168.1.65

SM: 255.255.255.192

DNS: 192.168.0.195

Max users: 50

10th Usable IP: 192.168.1.74

PoolName: R3C_LAN

Gateway: 192.168.1.129

SM: 255.255.255.192

DNS: 192.168.0.195

Max users: 50

10th Usable IP: 192.168.1.138

PoolName: R3D_LAN

Gateway: 192.168.1.193

SM: 255.255.255.192

DNS: 192.168.0.195

Max users: 50

10th Usable IP: 192.168.1.202

===== TASK 5: CONFIGURING DNS ENTRIES=====

DNS

IP Add: 192.168.0.195

Subnet: 255.255.255.224

Gateway: 192.168.0.193

Under services choose DNS

Name: www.ama.com

Address: 205.205.205.254

Add then Save

Name: www.fb.com

Address: 205.205.205.2

Add then Save

===== TASK 5: STATIC AND DEFAULT ROUTES=====

a. In ISP Router

ip route 10.0.0.0 255.0.0.0 192.168.0.33

ip route 172.16.0.0 255.255.0.0 192.168.0.33

ip route 192.168.1.0 255.255.255.0 192.168.0.33

do wr

b. In HQ Router

ip route 0.0.0.0 0.0.0.0 192.168.0.62

do wr

c.

d. In R2

```
ip route 192.168.0.192 255.255.255.224 192.168.0.97  
do wr
```

e. In R1

```
ip route 192.168.0.192 255.255.255.224 192.168.0.65  
do wr
```

f. In R3

```
ip route 192.168.0.192 255.255.255.224 192.168.0.158
```

===== CLOCK RATE=====

```
int se0/0  
clock rate 64000  
do wr
```

```
int se0/2  
clock rate 64000
```

```
int se0/1  
clock rate 64000  
do wr
```

===== ADMIN & AMA DETAILS =====

```
ADMIN  
IP Add: 192.168.0.194  
Subnet: 255.255.255.224  
Gateway: 192.168.0.193  
DNS: 192.168.0.195
```

AMA

IP Add: 205.205.205.254

Subnet: 255.255.255.0

Gateway: 205.205.205.1

===== PC'S DETAILS =====

PC1_R1A

IP Add: 10.23.255.254

Subnet: 255.248.0.0

Gateway: 10.16.0.1

DNS: 192.168.0.195

PC1_R1B

IP Add: 10.55.255.254

Subnet: 255.248.0.0

Gateway: 10.48.0.1

DNS: 192.168.0.195

PC1_R1C

IP Add: 10.95.255.254

Subnet: 255.248.0.0

Gateway: 10.88.0.1

DNS: 192.168.0.195

PC1_R1D

IP Add: 10.159.255.254

Subnet: 255.248.0.0

Gateway: 10.152.0.1

DNS: 192.168.0.195

PC1_R2A

IP Add: 172.16.31.254

Subnet: 255.255.240.0

Gateway: 172.16.16.1

DNS: 192.168.0.195

PC1_R2B

IP Add: 172.16.79.254

Subnet: 255.255.240.0

Gateway: 172.16.64.1

DNS: 192.168.0.195

PC1_R2C

IP Add: 172.16.143.254

Subnet: 255.255.240.0

Gateway: 172.16.128.1

DNS: 192.168.0.195

PC1_R2D

IP Add: 172.16.207.254

Subnet: 255.255.240.0

Gateway: 172.16.192.1

DNS: 192.168.0.195

PC1_R3A

IP Add: 192.168.0.194

Subnet: 255.255.255.192

Gateway: 192.168.0.193

DNS: 192.168.0.195

PC1_R3B

IP Add: 192.168.1.126

Subnet: 255.255.255.192

Gateway: 192.168.1.65

DNS: 192.168.0.195

PC1_R3C

IP Add: 192.168.1.190

Subnet: 255.255.255.192

Gateway: 192.168.1.129

DNS: 192.168.0.195

PC1_R3D

IP Add: 192.168.1.254

Subnet: 255.255.255.192

Gateway: 192.168.1.193

DNS: 192.168.0.195

===== NETWORK BACKUP =====

enable

copy running-config tftp

192.168.0.196

HQ