

IT222 - Networking 1

Introduction to Networks

Name: _____

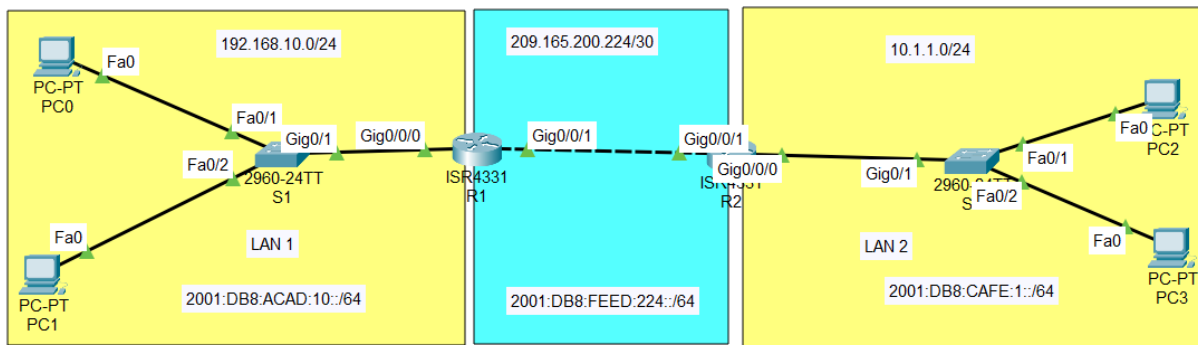
Score: _____/50

Instructor: _____

Date: _____

Year and Section: _____

Step-by-Step Laboratory Activity: Network Configuration Based on the Topology



Objective

Configure end devices, switches, and routers based on the given topology, including IPv4 & IPv6 addressing, static routing, security configurations, and hostname setup.

Step 1: Configure IP Addresses for End Devices (PCs)

On PC0

1. Open PC0 and go to **Desktop > IP Configuration**
2. Set IPv4 address: 192.168.10.2
3. Set Subnet Mask: 255.255.255.0
4. Set Default Gateway: 192.168.10.1
5. Set IPv6 address: 2001:DB8:ACAD:10::2/64
6. Set IPv6 Gateway: 2001:DB8:ACAD:10::1

On PC1

1. Open PC1 and go to **Desktop > IP Configuration**

2. Set IPv4 address: 192.168.10.3
3. Set Subnet Mask: 255.255.255.0
4. Set Default Gateway: 192.168.10.1
5. Set IPv6 address: 2001:DB8:ACAD:10::3/64
6. Set IPv6 Gateway: 2001:DB8:ACAD:10::1

On PC2

1. Open PC2 and go to **Desktop > IP Configuration**
2. Set IPv4 address: 10.1.1.2
3. Set Subnet Mask: 255.255.255.0
4. Set Default Gateway: 10.1.1.1
5. Set IPv6 address: 2001:DB8:CAFE:1::2/64
6. Set IPv6 Gateway: 2001:DB8:CAFE:1::1

On PC3

1. Open PC3 and go to **Desktop > IP Configuration**
2. Set IPv4 address: 10.1.1.3
3. Set Subnet Mask: 255.255.255.0
4. Set Default Gateway: 10.1.1.1
5. Set IPv6 address: 2001:DB8:CAFE:1::3/64
6. Set IPv6 Gateway: 2001:DB8:CAFE:1::1

Step 2: Configure Switch VLAN Interface

On Switch S1 (Left-side switch)

1. Open the **CLI** of Switch **S1**
2. Enter configuration mode:

```
enable
configure terminal
```

3. Set hostname:

```
hostname S1
```

4. Configure VLAN 1 interface for management:

```
interface vlan 1
ip address 192.168.10.1 255.255.255.0
ipv6 address 2001:DB8:ACAD:10::1/64
no shutdown
exit
```

5. Save the configuration:

```
Copy running-config startup-config
```

On Switch S2 (Right-side switch)

1. Open the **CLI** of Switch **S2**
2. Enter configuration mode:

```
enable
configure terminal
```

3. Set hostname:

```
hostname S2
```

4. Configure VLAN 1 interface for management:

```
interface vlan 1
ip address 10.1.1.1 255.255.255.0
ipv6 address 2001:DB8:CAFE:1::1/64
no shutdown
exit
```

5. Save the configuration:

```
Copy running-config startup-config
```

Step 3: Configure Router Interfaces

On Router R1

1. Open the **CLI** of **R1**
2. Set hostname:

```
enable
configure terminal
hostname R1
```

3. Configure **GigabitEthernet 0/0/0** (Connected to Switch S1)

```
interface Gig0/0/0
ip address 192.168.10.1 255.255.255.0
ipv6 address 2001:DB8:ACAD:10::1/64
no shutdown
exit
```

4. Configure **GigabitEthernet 0/0/1** (Connected to R2)

```
interface Gig0/0/1
ip address 209.165.200.225 255.255.255.252
ipv6 address 2001:DB8:FEED:224::1/64
no shutdown
exit
```

5. Save configuration:

```
Copy running-config startup-config
```

On Router R2

1. Open the **CLI** of **R2**
2. Set hostname:

```
enable
configure terminal
hostname R2
```

3. Configure **GigabitEthernet 0/0/0** (Connected to R1)

```
interface Gig0/0/0
ip address 209.165.200.226 255.255.255.252
ipv6 address 2001:DB8:FEED:224::2/64
no shutdown
exit
```

4. Configure **GigabitEthernet 0/0/1** (Connected to Switch S2)

```
interface Gig0/0/1
ip address 10.1.1.1 255.255.255.0
ipv6 address 2001:DB8:CAFE:1::1/64
no shutdown
exit
```

5. Save configuration:

```
Copy running-config startup-config
```

Step 4: Configure Static Routes

On Router R1

```
ip route 10.1.1.0 255.255.255.0 209.165.200.226
ipv6 route 2001:DB8:CAFE:1::/64 2001:DB8:FEED:224::2
```

On Router R2

```
ip route 192.168.10.0 255.255.255.0 209.165.200.225
ipv6 route 2001:DB8:ACAD:10::/64 2001:DB8:FEED:224::1
```

Step 5: Security Configurations (Switches 1 & 2, Routers 1 & 2)

Set Privilege Mode Password

```
enable secret cisco123
```

Set Console Password

```
line console 0
password compass
login
exit
```

Set VTY Password

```
line vty 0 15
password vtypass
login
exit
```

Set MOTD Banner

```
banner motd #Unauthorized access is prohibited!#
```

Encrypt Passwords

```
service password-encryption
```

Save Configuration

```
Copy running-config startup-config
```

Step 6: Test Connectivity

1. **Use the Ping Command**
 - From PC0, ping PC2 (10.1.1.2)
 - From PC2, ping PC0 (192.168.10.2)
 - From PC1, ping PC3 (10.1.1.3)
 - From PC3, ping PC1 (192.168.10.3)
2. **Check Routing Table**
 - On R1: show ip route
 - On R2: show ip route