Homework 4 - Information Security (ICS344)

Alfaifi, Ammar – 201855360

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1 Router Configuration Steps

Assuming you have a virtual machine that you want to configure as a router with two interfaces, follow these steps:

1.1 Assign IP Addresses to Interfaces

Listing 1: Assign IP addresses to interfaces

```
sudo ifconfig eth0 <IP_address_A> netmask <subnet\_mask\_A>
sudo ifconfig eth1 <IP\_address\_B> netmask <subnet\_mask\_B>
```

1.2 Enable IP Forwarding

Listing 2: Enable IP forwarding

```
# Temporary (for testing)
sudo sysctl -w net.ipv4.ip\_forward=1

# Permanent
sudo nano /etc/sysctl.conf
# Uncomment or add the following line:
# net.ipv4.ip\_forward=1
sudo sysctl -p
```

1.3 Set Up NAT

Listing 3: Set up NAT

```
sudo iptables -t nat -A POSTROUTING -o eth0 -j MASQUERADE
```

1.4 Configure Routing

Listing 4: Configure static routes

```
# Add route for Network B
sudo route add -net <Network\_B> netmask <Subnet\_B> gw <Router\_IP\_A>

# Add route for Network A
sudo route add -net <Network\_A> netmask <Subnet\_A> gw <Router\_IP\_B>
```

1.5 Update DNS

Update the DNS settings on devices in both networks to point to the router's IP addresses.

1.6 Test Connectivity

Ensure that routing is working correctly by testing connectivity between devices in both networks.

2 Important Notes

- This is a basic setup. In a real-world scenario, consider using dynamic routing protocols for more flexibility.
- Firewall settings may need adjustment based on specific requirements.
- Ensure your virtualization platform supports the configuration of multiple network interfaces.