

Basic Home Network Setup - Project Report

1. Overview

This project demonstrates a functional home network setup using a router, switch, DHCP, and Wi-Fi access point. It covers configuration, testing, and security enhancements.

2. Network Topology

- Router (Gateway: 192.168.1.1)
- Switch connecting end devices
- Wireless Access Point (SSID: Home_Network)
- End Devices (DHCP enabled)

3. IP Configuration

- Router LAN IP: 192.168.1.1/24
- DHCP Range: 192.168.1.10 - 192.168.1.100
- DNS: 8.8.8.8

4. Router Configuration Commands

```
ip dhcp excluded-address 192.168.1.1 192.168.1.9
ip dhcp pool HOME_NETWORK
network 192.168.1.0 255.255.255.0
default-router 192.168.1.1
dns-server 8.8.8.8
interface GigabitEthernet0/0
ip address 192.168.1.1 255.255.255.0
no shutdown
```

5. Testing

- ping 192.168.1.1 (Gateway)
- ping 8.8.8.8 (Internet)
- ipconfig to verify DHCP assignment

6. Security Features

- WPA2 enabled on Wi-Fi
- Changed default router password
- Disabled remote access

7. Conclusion

This project validates core networking skills: DHCP, routing, LAN setup, Wi-Fi security, and troubleshooting.