1. Install the DHCP Server

- Update package lists:

  Bash

  ```
  sudo apt update
  ```

- Install the ISC DHCP server:

  Bash

  ```
  sudo apt install isc-dhcp-server
  ```

2. Configure the DHCP Server

- Edit the main configuration file:

  Bash

  ```
  sudo nano /etc/dhcp/dhcpd.conf
  ```

- Define the DHCP scope:

  ```
  subnet 192.168.1.0 netmask 255.255.255.0 {
      range 192.168.1.100 192.168.1.200;
      option routers 192.168.1.1;
      option domain-name-servers 8.8.8.8, 8.8.4.4;
      option domain-name "example.local";
      default-lease-time 600;
      max-lease-time 7200;
  }
  ```

  - Replace `192.168.1.0` with your actual network address.
  - Replace `192.168.1.100 192.168.1.200` with the desired IP address range for DHCP clients.
  - Replace `192.168.1.1` with the IP address of your router (default gateway).
  - Replace `8.8.8.8, 8.8.4.4` with your preferred DNS server addresses.
  - Adjust `default-lease-time` and `max-lease-time` as needed.

- Specify the interface to listen on:

- Edit the `interfaces` file:

  Bash

  ```
  sudo nano /etc/default/isc-dhcp-server
  ```

- Set the `INTERFACESv4` variable to the interface the DHCP server should listen on:

  ```
  INTERFACESv4="eth0"
  ```

  - Replace `eth0` with the actual interface name.

3. Start and enable the DHCP service

- Start the DHCP service:

  Bash

  ```
  sudo systemctl start isc-dhcp-server
  ```

- Enable the DHCP service to start on boot:

  Bash

  ```
  sudo systemctl enable isc-dhcp-server
  ```

4. Test the DHCP server

- Connect a new device to the network.
- Verify that the device automatically receives an IP address from the DHCP server.

Important Notes:

- Security:
  - Restrict DHCP service access to the network segment you want to serve.
  - Consider using MAC address filtering to further control which devices can obtain IP addresses.
- Configuration:
  - Customize the configuration file to meet your specific network requirements.
- Troubleshooting:
  - Check the DHCP server logs (`/var/log/syslog`) for any errors or warnings.
  - Use tools like `dhcpd_leases` to view the current DHCP leases