

# IP Addressing in Linux: A Comprehensive Guide

In this article, we will explore the concept of IP addressing and its importance in the Linux environment. We will discuss how IP addresses are used to identify devices on a network, allocate IP addresses in Linux, and configure network interfaces. Additionally, we will provide practical examples and commands specific to the Linux environment.

## Examples:

### 1. Allocating IP Addresses in Linux:

- To allocate a static IP address to a network interface, open the terminal and navigate to the network configuration directory: `cd /etc/sysconfig/network-scripts/`
- Identify the network interface you want to configure, such as `eth0` or `ens33`, and open the corresponding configuration file using a text editor: `vim ifcfg-eth0`
- Within the file, modify the `BOOTPROTO` value to `static` and add the desired IP address, subnet mask, default gateway, and DNS servers:

```
BOOTPROTO=static
IPADDR=192.168.1.100
NETMASK=255.255.255.0
GATEWAY=192.168.1.1
DNS1=8.8.8.8
DNS2=8.8.4.4
```

- Save the changes and restart the network service: `systemctl restart network`

### 2. Configuring DHCP in Linux:

- To configure a network interface to obtain an IP address automatically from a DHCP server, open the terminal and navigate to the network configuration directory: `cd /etc/sysconfig/network-scripts/`
- Open the configuration file for the desired interface: `vim ifcfg-eth0`
- Change the `BOOTPROTO` value to `dhcp`:

```
BOOTPROTO=dhcp
```

- Save the changes and restart the network service: `systemctl restart network`