Netmask

The netmask tool in Linux is a command-line utility used for manipulating and interpreting IP addresses and netmasks. It provides various functions to assist with network configuration and troubleshooting.

The netmask tool is an invaluable resource for anyone working with network configurations. Its ability to perform quick and accurate calculations related to IP addresses and netmasks simplifies many aspects of network management. By understanding and utilizing this tool, network administrators can efficiently handle tasks related to subnetting, address allocation, and network troubleshooting.

➢ **Conversion between Representations: -**
  - **CIDR to Netmask:** Converts CIDR notation
  - **Netmask to CIDR:** Converts a dotted decimal netmask

➢ **Address Calculations: -**
  - **Network Address:** Determines the network address for a given IP address and netmask.
  - **Broadcast Address:** Calculates the broadcast address for a given IP address and netmask.
  - **Host Range:** Provides the range of valid host IP addresses within a given subnet.

Examples: -

1. This command converts the CIDR notation /16 to its corresponding netmask 255.255.0.0.

```
┌──(kali㊀kali)-[~]
└─$ sudo su
[sudo] password for kali:
┌──(root㊀kali)-[/home/kali]
└─# netmask -c 16
        0.0.0.16/32
```

2. This command is used to converts the netmask 255.255.255.0 to its CIDR notation.

```
┌──(root㊀kali)-[/home/kali]
└─# netmask -s 255.255.255.0
  255.255.255.0/255.255.255.255
```

3. The command here is used to calculates the network address for the IP 10.0.0.5 with the netmask 255.0.0.0, resulting in 10.0.0.0.

```
┌──(root㊀kali)-[/home/kali]
└─# netmask 10.0.0.5 255.0.0.0

        10.0.0.5/32
     255.0.0.0/32
```

4. The command calculates the broadcast address for the IP 172.16.5.20 with the netmask 255.255.0.0, resulting in 172.16.255.255.

```
(root@kali)-[/home/kali]
# netmask -b 172.16.5.20 255.255.0.0

10101100 00010000 00000101 00010100 / 11111111 11111111 11111111 11111111
11111111 11111111 00000000 00000000 / 11111111 11111111 11111111 11111111
```

5. This command calculates the range of host IP addresses for the subnet 192.168.0.0/23, resulting in 192.168.0.1 - 192.168.1.254.

```
(root@kali)-[/home/kali]
# netmask -r 192.168.0.0/23

  192.168.0.0-192.168.1.255   (512)
```