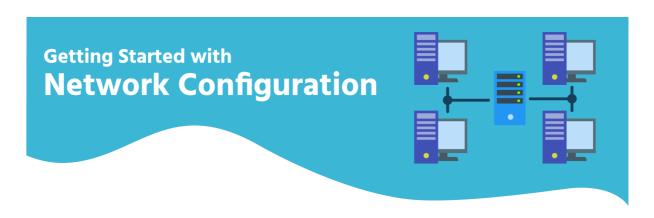
# NDG Linux Unhatched - NDG Linux Unhatched

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## **Network Configuration**

The <u>ifconfig</u> command stands for "interface configuration" and is used to display network configuration information.

ifconfig [OPTIONS]

#### **Note**

The <u>iwconfig</u> command is similar to the <u>ifconfig</u> command, but it is dedicated to wireless network interfaces.

Not all network settings are important for this module, but it is important to note in the following example that the IPv4 address of the primary network device eth0 is 192.168.1.2 and that the device is currently active (UP):

```
root@localhost:~# ifconfig
          Link encap:Ethernet HWaddr 02:42:c0:a8:01:02
eth0
          inet addr:192.168.1.2 Bcast:192.168.1.255 Mask:255.255.255.0
         UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
         RX packets:59 errors:0 dropped:0 overruns:0 frame:0
         TX packets:86 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
         RX bytes:4346 (4.3 KB) TX bytes:5602 (5.6 KB)
10
          Link encap:Local Loopback
          inet addr:127.0.0.1 Mask:255.0.0.0
         UP LOOPBACK RUNNING MTU:65536 Metric:1
         RX packets:2 errors:0 dropped:0 overruns:0 frame:0
         TX packets:2 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:100 (100.0 B) TX bytes:100 (100.0 B)
```

#### **Consider This**

The 10 device is referred to as the *loopback* device. It is a special network device used by the system when sending network-based data to itself.

The <u>ifconfig</u> command can also be used to temporarily modify network settings.

Typically these changes should be permanent, so using the <u>ifconfig</u> command to make such changes is fairly rare.

The ping command is used to verify connectivity between two computers. It does this by sending packets to another machine on a network. If the sender receives a response it should be possible to connect to that machine.

Information is sent using "packets"; the encapsulated unit of data sent over a network. In order for the packets to find the other computer, they will need an address. The ping command uses IP addresses to identify a computer on the network that it wants to connect to.

By default, the ping command will continue sending packets until the break command (CTL + C) is entered at the console. To limit how many pings are sent, use the -c option followed by the number of pings to be sent. The example below shows ping being limited to 4 iterations with -c 4.

If the ping command is successful, you will see output like the following:

```
root@localhost:~# ping -c 4 192.168.1.2
PING 192.168.1.2 (192.168.1.2) 56(84) bytes of data.
64 bytes from 192.168.1.2: icmp_req=1 ttl=64 time=0.051 ms
64 bytes from 192.168.1.2: icmp_req=2 ttl=64 time=0.064 ms
64 bytes from 192.168.1.2: icmp_req=3 ttl=64 time=0.050 ms
64 bytes from 192.168.1.2: icmp_req=4 ttl=64 time=0.043 ms
--- 192.168.1.2 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 2999ms
rtt min/avg/max/mdev = 0.043/0.052/0.064/0.007 ms
root@localhost:~#
```

If the ping command fails, you will receive a message stating, Destination Host Unreachable:

```
root@localhost:~# ping -c 4 192.168.1.3
PING 192.168.1.3 (192.168.1.3) 56(84) bytes of data.
From 192.168.1.2 icmp_seq=1 Destination Host Unreachable
From 192.168.1.2 icmp_seq=2 Destination Host Unreachable
From 192.168.1.2 icmp_seq=3 Destination Host Unreachable
From 192.168.1.2 icmp_seq=4 Destination Host Unreachable
--- 192.168.1.3 ping statistics ---
4 packets transmitted, 0 received, +4 errors, 100% packet loss, time 3065ms
pipe 4
root@localhost:~#
```

The ping command may fail even though the remote machine is connecting. This is because some administrators configure their machines, or even entire networks, not to respond to ping requests as a security measure. The ping command also works with a hostname, or domain name like yahoo.com. Using this first saves time, if that ping command is successful, there is proper name resolution AND the IP address is functioning properly as well.

### **Follow Along**

Exit the root account using the exit command:

root@localhost:~# exit
logout