

Shete Ajay : Subnetting

Before Configuring:

```
Welcome to Ubuntu 16.04.2 LTS (GNU/Linux 4.8.0-56-generic x86_64)

* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:       https://ubuntu.com/advantage

344 packages can be updated.
133 updates are security updates.

student@CN-R2:~$ ifconfig -a
eth0      Link encap:Ethernet  HWaddr 00:00:00:00:00:04
          BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

eth1      Link encap:Ethernet  HWaddr 00:00:00:00:00:05
          BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

eth2      Link encap:Ethernet  HWaddr 00:00:00:00:00:0c
          BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:88 errors:0 dropped:0 overruns:0 frame:0
          TX packets:88 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1
          RX bytes:5718 (5.7 KB)  TX bytes:5718 (5.7 KB)

student@CN-R2:~$
```

```

CN-R1 login: student
Password:
Last login: Thu Sep 21 12:25:18 EDT 2017 on tty1
Welcome to Ubuntu 16.04.2 LTS (GNU/Linux 4.10.0-33-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

219 packages can be updated.
2 updates are security updates.

student@CN-R1:~$ ifconfig -a
eth0      Link encap:Ethernet  HWaddr 02:1d:07:00:05:94
          inet addr:10.20.1.37  Bcast:10.20.1.255  Mask:255.255.255.0
          inet6 addr: fe80::1d:7ff:fe00:594/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:58 errors:0 dropped:0 overruns:0 frame:0
          TX packets:161 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:5435 (5.4 KB)  TX bytes:15839 (15.8 KB)

eth1      Link encap:Ethernet  HWaddr 00:00:00:00:00:02
          BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:28 errors:0 dropped:0 overruns:0 frame:0
          TX packets:28 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:2162 (2.1 KB)  TX bytes:2162 (2.1 KB)

student@CN-R1:~$ _

```

Connected (unencrypted) to: QEMU (263_20_38)

Applications ▾ Places ▾ Terminal ▾ Thu 13:00

student@kali: /

File Edit View Search Terminal Help

```
student@kali:~$ cd..
bash: cd..: command not found
student@kali:~$ cd ..
student@kali:/home$ cd ..
student@kali:/$ cd ..
student@kali:/$ ifconfig
bash: ifconfig: command not found
student@kali:/$ sudo ifconfig
[sudo] password for student:
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 0 (Local Loopback)
    RX packets 22 bytes 1372 (1.3 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 22 bytes 1372 (1.3 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

student@kali:/$ ifconfig
bash: ifconfig: command not found
student@kali:/$
```

Kali

Configuring:

```
Connected (unencrypted) to: QEMU (263_20_34)
# interfaces(5) file used by ifup(8) and ifdown(8)
auto lo
iface lo inet loopback

allow-hotplug eth0
iface eth0 inet dhcp

auto eth1
iface eth1 inet static
address 10.10.10.1
network 10.10.10.0
netmask 255.255.255.248
broadcast 10.10.10.7
```

R1

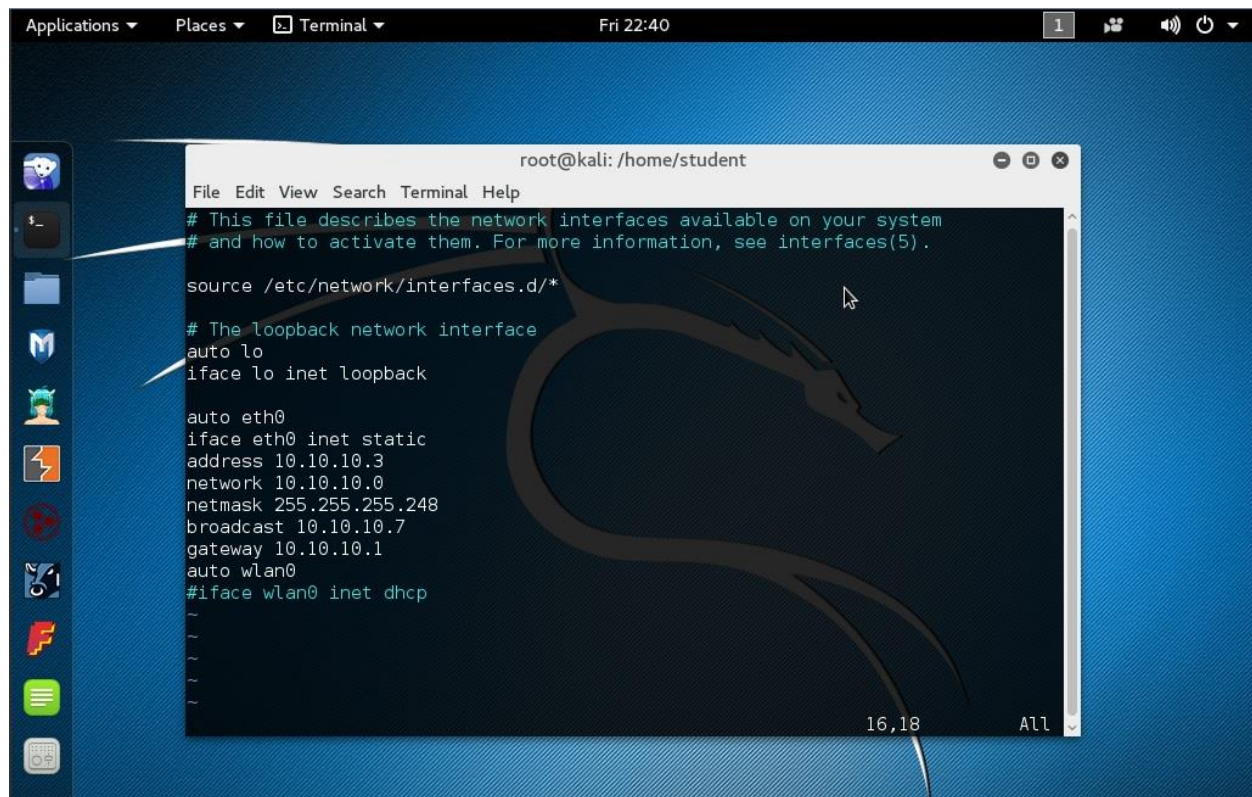
```
Connected (unencrypted) to: QEMU (263_20_34)
# interfaces(5) file used by ifup(8) and ifdown(8)
auto lo
iface lo inet loopback

auto eth0
iface eth0 inet static
address 10.10.10.2
network 10.10.10.0
netmask 255.255.255.248
broadcast 10.10.10.7

auto eth1
iface eth1 inet static

auto eth2
iface eth2 inet static
```

R2



KALI

After Configuring:

```
Connected (unencrypted) to: QEMU (263_20_33)
root@CN-R1:/home/student# ifconfig -a
eth0      Link encap:Ethernet  HWaddr 02:1d:07:00:05:94
          inet addr:10.20.1.37  Bcast:10.20.1.255  Mask:255.255.255.0
          inet6 addr: fe80::1d:7ff:fe00:594/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:286 errors:0 dropped:0 overruns:0 frame:0
          TX packets:501 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:26840 (26.8 KB)  TX bytes:44741 (44.7 KB)

eth1      Link encap:Ethernet  HWaddr 00:00:00:00:00:02
          inet addr:10.10.10.1  Bcast:10.10.10.7  Mask:255.255.255.248
          inet6 addr: fe80::200:ff:fe00:2/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:60 errors:0 dropped:0 overruns:0 frame:0
          TX packets:45 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:6062 (6.0 KB)  TX bytes:6187 (6.1 KB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:92 errors:0 dropped:0 overruns:0 frame:0
          TX packets:92 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:16524 (16.5 KB)  TX bytes:16524 (16.5 KB)

root@CN-R1:/home/student# _
```

```
root@CN-R2:/home/student# ifconfig -a
eth0      Link encap:Ethernet  HWaddr 00:00:00:00:00:04
          inet addr:10.10.10.2  Bcast:10.10.10.7  Mask:255.255.255.248
          inet6 addr: fe80::200:ff:fe00:4/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:63 errors:0 dropped:0 overruns:0 frame:0
          TX packets:41 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:6633 (6.6 KB)  TX bytes:5504 (5.5 KB)

eth1      Link encap:Ethernet  HWaddr 00:00:00:00:00:05
          BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

eth2      Link encap:Ethernet  HWaddr 00:00:00:00:00:0c
          BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:848 errors:0 dropped:0 overruns:0 frame:0
          TX packets:848 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1
          RX bytes:56422 (56.4 KB)  TX bytes:56422 (56.4 KB)

root@CN-R2:/home/student#
```

```
root@kali: /home/student
File Edit View Search Terminal Help
student@kali:~$ sudo su
[sudo] password for student:
root@kali:/home/student# vi /etc/network/interfaces
root@kali:/home/student# ifconfig -a
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.10.10.3 netmask 255.255.255.248 broadcast 10.10.10.7
    inet6 fe80::200:ff:fe00:3 prefixlen 64 scopeid 0x20<link>
    ether 00:00:00:00:00:03 txqueuelen 1000 (Ethernet)
    RX packets 94 bytes 11023 (10.7 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 24 bytes 1580 (1.5 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 0 (Local Loopback)
    RX packets 24 bytes 1530 (1.4 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 24 bytes 1530 (1.4 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

root@kali:/home/student#
```

KALI

Connected (unencrypted) to: QEMU (263_20_33)

```
student@CN-R1:~$ ping 10.10.10.2
PING 10.10.10.2 (10.10.10.2) 56(84) bytes of data.
64 bytes from 10.10.10.2: icmp_seq=1 ttl=64 time=1.07 ms
64 bytes from 10.10.10.2: icmp_seq=2 ttl=64 time=0.463 ms
64 bytes from 10.10.10.2: icmp_seq=3 ttl=64 time=0.444 ms
64 bytes from 10.10.10.2: icmp_seq=4 ttl=64 time=0.534 ms
64 bytes from 10.10.10.2: icmp_seq=5 ttl=64 time=0.503 ms
64 bytes from 10.10.10.2: icmp_seq=6 ttl=64 time=0.320 ms
64 bytes from 10.10.10.2: icmp_seq=7 ttl=64 time=0.458 ms
64 bytes from 10.10.10.2: icmp_seq=8 ttl=64 time=0.498 ms

--- 10.10.10.2 ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7129ms
rtt min/avg/max/mdev = 0.320/0.537/1.079/0.214 ms
student@CN-R1:~$ _
```

Ping R1 to R2

```
student@CN-R1:~$ ping 10.10.10.2
PING 10.10.10.2 (10.10.10.2) 56(84) bytes of data.
64 bytes from 10.10.10.2: icmp_seq=1 ttl=64 time=1.07 ms
64 bytes from 10.10.10.2: icmp_seq=2 ttl=64 time=0.463 ms
64 bytes from 10.10.10.2: icmp_seq=3 ttl=64 time=0.444 ms
64 bytes from 10.10.10.2: icmp_seq=4 ttl=64 time=0.534 ms
64 bytes from 10.10.10.2: icmp_seq=5 ttl=64 time=0.503 ms
64 bytes from 10.10.10.2: icmp_seq=6 ttl=64 time=0.320 ms
64 bytes from 10.10.10.2: icmp_seq=7 ttl=64 time=0.458 ms
64 bytes from 10.10.10.2: icmp_seq=8 ttl=64 time=0.498 ms

--- 10.10.10.2 ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7129ms
rtt min/avg/max/mdev = 0.320/0.537/1.079/0.214 ms
student@CN-R1:~$ ping 10.10.10.3
PING 10.10.10.3 (10.10.10.3) 56(84) bytes of data.
64 bytes from 10.10.10.3: icmp_seq=1 ttl=64 time=0.474 ms
64 bytes from 10.10.10.3: icmp_seq=2 ttl=64 time=0.260 ms
64 bytes from 10.10.10.3: icmp_seq=3 ttl=64 time=0.336 ms
64 bytes from 10.10.10.3: icmp_seq=4 ttl=64 time=0.287 ms
64 bytes from 10.10.10.3: icmp_seq=5 ttl=64 time=0.405 ms
64 bytes from 10.10.10.3: icmp_seq=6 ttl=64 time=0.216 ms
64 bytes from 10.10.10.3: icmp_seq=7 ttl=64 time=0.290 ms
64 bytes from 10.10.10.3: icmp_seq=8 ttl=64 time=0.232 ms
^C
--- 10.10.10.3 ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7136ms
rtt min/avg/max/mdev = 0.216/0.312/0.474/0.084 ms
student@CN-R1:~$ _
```

Ping R1 to Kali

Connected (unencrypted) to: QEMU (263_20_34)

```
student@CN-R2:~$ ping 10.10.10.3
PING 10.10.10.3 (10.10.10.3) 56(84) bytes of data.
64 bytes from 10.10.10.3: icmp_seq=1 ttl=64 time=0.401 ms
64 bytes from 10.10.10.3: icmp_seq=2 ttl=64 time=0.271 ms
64 bytes from 10.10.10.3: icmp_seq=3 ttl=64 time=0.319 ms
64 bytes from 10.10.10.3: icmp_seq=4 ttl=64 time=0.261 ms
64 bytes from 10.10.10.3: icmp_seq=5 ttl=64 time=0.313 ms
64 bytes from 10.10.10.3: icmp_seq=6 ttl=64 time=0.230 ms
64 bytes from 10.10.10.3: icmp_seq=7 ttl=64 time=0.332 ms
64 bytes from 10.10.10.3: icmp_seq=8 ttl=64 time=0.297 ms
^C
--- 10.10.10.3 ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7150ms
rtt min/avg/max/mdev = 0.230/0.303/0.401/0.048 ms
student@CN-R2:~$
```

Ping R2 to Kali