

CENG334

COMPUTER NETWORKS

LABORATORY MANUAL III

In this weeks laboratory manual, you will find some basic network commands available on GNU/Linux based systems. These commands are used for tasks such as changing network settings, displaying active connections on the computer, showing the route between two hosts, etc.

Below are descriptions of the commands and some examples about them. Try (and change if necessary) each command on your computer and observe the output.

hostname

Displays and sets hostname of a computer.

Examples:

```
$ hostname – Displays hostname of the computer.
```

```
# hostname tux – Sets hostname of the computer to tux.
```

ping

Sends echo requests to network hosts.

Examples:

```
$ ping www.cankaya.edu.tr – Sends echo requests to cankaya.edu.tr host.
```

```
$ ping -b 192.168.1.255 – Send echo request to broadcast address.
```

traceroute

Prints the route packets trace to network host.

Examples:

```
$ traceroute www.cankaya.edu.tr – starts traceroute with default options.
```

```
$ traceroute -m 50 www.cankaya.edu.tr – starts traceroute with maximum hops = 50.
```

netstat

Prints network connections, routing tables, interface statistics, masquerade connections, and multicast memberships.

Examples:

```
$ netstat -at – Lists all tcp ports.
```

```
$ netstat -au – Lists all udp ports.
```

```
$ netstat -lt – Lists listening tcp ports.
```

```
$ netstat -lu – Lists listening udp ports.
```

```
$ netstat -tulp – Lists listening tcp & udp ports and displays which process they belong to.
```

host

DNS lookup tool.

dig

DNS lookup tool.

ifconfig

Configures network interfaces.

Examples:

\$ ifconfig – Displays information about all network interfaces.

\$ ifconfig eth0 – Displays information about only eth0 interface.

ifconfig eth0 down, ifconfig eth0 up – Disables / enables eth0 interface.

ifconfig eth0 192.168.1.2 netmask 255.255.255.0 broadcast 192.168.1.255 – Sets new IP address, netmask and broadcast definition for eth0.

route

Displays and changes routing tables.

Examples:

\$ route – Displays the current routing tables on the computer.

\$ route add default gw 192.168.1.10 – Adds a default gateway (192.168.1.10) description to the routing table.

\$ route add -net 10.0.2.0 netmask 255.255.255.0 reject – Rejects connections from/to all computers in the 10.0.2.0 network.

Exercises:

1. Learn your computer's ip address and note the last part.
2. Change your computer's ip address to 192.168.1.xx (netmask=255.255.255.0). Change xx with the number you noted before.
3. Ping your laboratory pair's new ip address.
4. Reject connections from/to any of your friends in laboratory and then use ping to check.