# Computer Networking Practice Lab – 1


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# LINUX COMMANDS

**ifconfig:** ifconfig is short for “interface configuration”. It is used to display the information of the current network configuration, set up an IP address, enable or disable network configurations.

ifconfig –a: It displays the configurations of the all active and inactive networks.

**ping:** ping is short for Packet Internet Groper. It returns the transmission speed between two nodes.

ping –c number: The transmission speed is checked for ‘number’ packet transfers and closes.

**traceroute:** It gives the number of hops taken to reach the destination and also the path the packets travel.

**netstat:** It returns basic statistics on all the network activities and ports the connections are running ans which ports are free to for use.

**nslookup:** It is short for Name Server lookup. It returns information from the DNS (Domain Name System) server.

**route:** It is used to view and manipulate the IP routing table.

**host:** It is used to resolve a hostname into an IP address or vice-versa.

**arp:** It is used to view or edit entries in ARP (Address Resolution Protocol) cache.

**hostname:** It is used to view or modify a computer’s hostname.

**iwconfig:** It is similar to ifconfig, but used for wireless devices.

**dig:** It is short for Domain Information Groper. It queries the name servers and displays them.

**ethtools:** It is used to view or modify the ethernet adapter settings.

**telnet:** It enables remote control of computer with text-based inputs and outputs.

# SOCKET API

**socket():** It creates a socket.

It returns a socket description, similar to a file handler.

It takes three inputs: a domain (ipv4 or ipv6), a communication type (UDP or TCP) and protocol (0 for IP).

**bind():** It assigns an address available on the host to the socket.

It returns a negative number if it fails to assign, a positive number if it succeeds to assign.

It takes three inputs: a socket description, a socket address (structure describing an Internet socket address), length of the address (size of the above structure).

**sendto():** It sends a message to another socket.

It returns the number of bits of data sent.

It takes five inputs: a socket description, message (a character array), length of the message (size of the above array), a destination socket address (structure describing an Internet socket address), length of the address (size of the above structure).

**recvfrom():** It receive a message from another socket.

It returns the number of bits of data received.

It takes five inputs: a socket description, buffer (a character array), length of the buffer (size of the above array), a source socket address (structure describing an Internet socket address), length of the address (size of the above structure).

**listen():** It puts the server socket in a passive mode, where it waits for the client to make a connection.

It takes two inputs: a server socket, a backlog (number of sockets that can be enqueued for a connection).

If a client approaches a socket which has a full queue, it receives an error (ECONNREFUSED).

**accept():** It accepts the first client request on the queue of pending requests created by the listen function.

It takes three inputs: a socket description, incoming request socket address (structure describe an Internet socket address), length of the address (size of the above structure).

**connect():** It sends a request to the server to create a connection.

It takes three inputs: a socket description, outgoing request socket address (structure describe an Internet socket address), length of the address (size of the above structure).