

# **Linux Essential commands**

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## Network Configuration & Initialization Files

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## 1 Network Configuration

### 1.1 Setting/Changing The hostname

The `# hostname` command allows you to directly query, or set, the hostname from the command line. but this changes it temporary. To change it permanently make sure you change the `/etc/hosts` file first.

### 1.2 Network Interfaces

#### 1.2.1 Interface names

Each NIC has name depends on vendor for example:

- eth0
- eth1
- eth2

To list the interface names for all NICs on your computer use

→ `ls /sys/class/net`

or

→ `ifconfig -a`

#### 1.2.2 MAC address

To view MAC address Use

→ `ifconfig`

→ `dmesg | grep eth`

→ `grep eth /var/log/dmesg`

Examine the output from the device driver (kernel module) as it was loaded

## 2 Shell Initialization Files

### 2.1 Global Initialization Files

Root only can write in this files. There are 2 global initialization files:

- `/etc/profile` This file gets executed whenever a bash login shell is entered as well as by DisplayManager when the desktop session loads.
- `/etc/bash.bashrc` This is the system-wide version of the `/.bashrc` file. By default this file is executed whenever a user enters a shell or the desktop environment.

## 2.2 Initialization Files

- `~/.profile`

It gets executed automatically by DisplayManager during startup process desktop session as well as by the login shell when on logs-in from the textual console.

- `~/.bash_profile` or `~/.bash_login`

If one of these file exists, bash executes it rather than "`~/.profile`" when it is started as a login shell. (Bash will prefer "`~/.bash_profile`" to "`~/.bash_login`"). However, these files won't influence a graphical session by default.

you will have one of the previous files depend on your distribution if you Ubuntu you will have `~/.profile`

## 2.3 Startup Files

- `~/.bashrc`

By default this file will be executed in each and every invocation of bash as well as while logging in to the graphical environment.

## 3 Environment Variables

- `$PWD`

The user current working directory

- `$SHELL`

Path name of the login shell. It shows the default shell but changing it to another shell does not change the actual default shell assigned to the user, it only affects the current session. To change the default shell permanently, this is done by using `#usermod` command

- `$USER`

Currently logged in user

- `$HOSTNAME`

Name of the computer

- `$PATH`

The `$PATH` environment variable defines the directories in which the system looks for executable files when you enter a command in the terminal. Each directory listed in `$PATH` is separated by a colon (:).

- `$PS1`

The prompt string is the text displayed in the terminal to indicate that the shell is ready to

accept commands. the `#PS1` variable defines the appearance of your command prompt in the terminal.

```

1 echo HOME
2 => HOME
3 echo $HOME
4 => /home/iti
5 mkdir $HOME/iti
6 HOME=/
7 cd
8 touch file1
9 => touch: cannot touch 'file': Permission dented
10 echo $PATH
11 => /usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:
12 /usr/local/ganes:/snap/bin
13 PATH=$PATH:/home/iti
14 echo $PATH
15 => /usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:
16 /usr/local/games:/snap/bin:/home/iti
17 eco $PS1
18 => iti@iti-virtual-machine:

```

In line 6 we change `$HOME` to `/` (root directory). This command affect `#cd` command as it reads the path from `$HOME` .but this doesn't change our home directory so as we see in line 9 we can't create file in this directory as it isn't our home directory.

we can use `#Set` command to see all environment variables

All of the above is temporary if we want these changes to be permanent we must add these commands to `~/.bashrc` file

## 4 Alias Command

If we always use some commands we can alias these command by easier names for example.

```

1 alias c='clear'

```

but this alias is temporary if we use this to be permanent add this to `~/.bashrc` file

To remove alias permanent we must remove it from `~/.bashrc` file but to remove it temporary use

```

1 unalias c

```

we can see all alias commands by type

```
1 alias
```

if we by mistake make an alias with the a name of one of the commands for example

```
1 alias ls='ls -al'
```

To execute the alias

```
1 ls
```

and to execute the command

```
1 \ls
```

or

```
1 /bin/ls
```