41. Command: ifconfig

ifconfig is used to configure the kernel-resident network interfaces. It is used at boot time to set up interfaces as necessary. After that, it is usually only needed when debugging or when system tuning is needed.

Check Active Network Interfaces

```
[root@localhost ~]$ ifconfig



eth0      Link encap:Ethernet  HWaddr 40:2C:F4:EA:CF:0E

          inet addr:192.168.1.3  Bcast:192.168.1.255
Mask:255.255.255.0

          inet6 addr: fe80::422c:f4ff:feea:cf0e/64
Scope:Link

          UP BROADCAST RUNNING MULTICAST  MTU:1500
Metric:1

          RX packets:163843 errors:0 dropped:0 overruns:0
frame:0

          TX packets:124990 errors:0 dropped:0 overruns:0
carrier:0

          collisions:0 txqueuelen:1000

          RX bytes:154389832 (147.2 MiB)  TX
bytes:65085817 (62.0 MiB)

          Interrupt:20 Memory:f7100000-f7120000



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:16436  Metric:1

          RX packets:78 errors:0 dropped:0 overruns:0
frame:0

          TX packets:78 errors:0 dropped:0 overruns:0
carrier:0

          collisions:0 txqueuelen:0

          RX bytes:4186 (4.0 KiB)  TX bytes:4186 (4.0
KiB)
```

Check All Network Interfaces

Display details of All interfaces including disabled interfaces using "**-a**" argument.

```
[root@localhost ~]$ ifconfig -a



eth0      Link encap:Ethernet  HWaddr 40:2C:F4:EA:CF:0E

          inet addr:192.168.1.3  Bcast:192.168.1.255
Mask:255.255.255.0

          inet6 addr: fe80::422c:f4ff:feea:cf0e/64
Scope:Link

          UP BROADCAST RUNNING MULTICAST  MTU:1500
Metric:1
```

```
          RX packets:163843 errors:0 dropped:0 overruns:0
frame:0

          TX packets:124990 errors:0 dropped:0 overruns:0
carrier:0

          collisions:0 txqueuelen:1000

          RX bytes:154389832 (147.2 MiB)  TX
bytes:65085817 (62.0 MiB)

          Interrupt:20 Memory:f7100000-f7120000



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:16436  Metric:1

          RX packets:78 errors:0 dropped:0 overruns:0
frame:0

          TX packets:78 errors:0 dropped:0 overruns:0
carrier:0

          collisions:0 txqueuelen:0

          RX bytes:4186 (4.0 KiB)  TX bytes:4186 (4.0
KiB)



virbr0    Link encap:Ethernet  HWaddr 0e:30:a3:3a:bf:03
```

```
          inet addr:192.168.122.1  Bcast:192.168.122.255
Mask:255.255.255.0

          UP 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:0

          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
```

Disable an Interface

```
[root@localhost ~]$ ifconfig eth0 down
```

Enable an Interface

```
[root@localhost ~]$ ifconfig eth0 up
```

Assign IP Address to an Interface

Assign “192.168.1.12” as the IP address for the interface eth0.

```
[root@localhost ~]$ ifconfig eth0 192.168.1.12
```

Change Subnet Mask of Interface eth0

```
[root@localhost ~]$ ifconfig eth0 netmask 255.255.255.
```

Change Broadcast Address of Interface eth0

```
[root@localhost ~]$ ifconfig eth0 broadcast 192.168.1.255
```

Assign IP Address, Netmask and Broadcast to Interface eth0

```
[root@localhost ~]$ ifconfig eth0 192.168.1.12 netmask
255.255.255.0 broadcast 192.168.1.255
```

42. Command: netstat

netstat command displays various network related information such as network connections, routing tables, interface statistics, masquerade connections, multicast memberships etc..,

List All Network Ports

```
[root@localhost ~]$ netstat -a



Active UNIX domain sockets (servers and established)

Proto RefCnt Flags       Type       State         I-Node
Path

unix  2      [ ACC ]     STREAM     LISTENING     741379
/run/user/user1/keyring-I5cn1c/gpg
```

```
unix  2      [ ACC ]     STREAM     LISTENING     8965
/var/run/acpid.socket

unix  2      [ ACC ]     STREAM     LISTENING     18584
/tmp/.X11-unix/X0

unix  2      [ ACC ]     STREAM     LISTENING     741385
/run/user/user1/keyring-I5cn1c/ssh

unix  2      [ ACC ]     STREAM     LISTENING     741387
/run/user/user1/keyring-I5cn1c/pkcs11

unix  2      [ ACC ]     STREAM     LISTENING     20242
@/tmp/dbus-ghtTjuPN46

unix  2      [ ACC ]     STREAM     LISTENING     13332
/var/run/samba/winbindd_privileged/pipe

unix  2      [ ACC ]     STREAM     LISTENING     13331
/tmp/.winbindd/pipe

unix  2      [ ACC ]     STREAM     LISTENING     11030
/var/run/mysqld/mysqld.sock

unix  2      [ ACC ]     STREAM     LISTENING     19308
/tmp/ssh-qnZadSgJAbqd/agent.3221

unix  2      [ ACC ]     STREAM     LISTENING     436781
/tmp/HotShots

unix  2      [ ACC ]     STREAM     LISTENING     46110
/run/user/ravisaive/pulse/native

unix  2      [ ACC ]     STREAM     LISTENING     19310
/tmp/gpg-zfE9YT/S.gpg-agent

....
```

List All TCP Ports

```
[root@localhost ~]$ netstat -at



Active Internet connections (servers and established)

Proto Recv-Q Send-Q Local Address           Foreign
Address         State

tcp        0      0 localhost:mysql         *:*
LISTEN

tcp        0      0 *:5901                  *:*
LISTEN

tcp        0      0 *:5902                  *:*
LISTEN

tcp        0      0 *:x11-1                 *:*
LISTEN

tcp        0      0 *:x11-2                 *:*
LISTEN

tcp        0      0 *:5938                  *:*
LISTEN

tcp        0      0 localhost:5940          *:*
LISTEN

tcp        0      0 ravisaive-OptiPl:domain *:*
LISTEN

tcp        0      0 ravisaive-OptiPl:domain *:*
LISTEN
```

```
tcp        0      0 localhost:ipp           *:*
LISTEN

tcp        0      0 ravisaive-OptiPle:48270 ec2-23-21-
236-70.c:http ESTABLISHED

tcp        0      0 ravisaive-OptiPle:48272 ec2-23-21-
236-70.c:http TIME_WAIT

tcp        0      0 ravisaive-OptiPle:48421 bom03s01-in-
f22.1:https ESTABLISHED

tcp        0      0 ravisaive-OptiPle:48269 ec2-23-21-
236-70.c:http ESTABLISHED

tcp        0      0 ravisaive-OptiPle:39084 channel-ecmp-
06-f:https ESTABLISHED

...
```

Show Statistics for All Ports

```
[root@localhost ~]$ netstat -s



Ip:

    4994239 total packets received

    0 forwarded

    0 incoming packets discarded

    4165741 incoming packets delivered

    3248924 requests sent out
```

```
    8 outgoing packets dropped
Icmp:
    29460 ICMP messages received
    566 input ICMP message failed.
    ICMP input histogram:
        destination unreachable: 98
        redirects: 29362
    2918 ICMP messages sent
    0 ICMP messages failed
    ICMP output histogram:
        destination unreachable: 2918
IcmpMsg:
        InType3: 98
        InType5: 29362
        OutType3: 2918
Tcp:
    94533 active connections openings
    23 passive connection openings
    5870 failed connection attempts
```

```
    7194 connection resets received

....
```

OK! For some reason if you want not to resolve host, port and user name as a output of netstat.

```
[root@localhost ~]$ netstat -an
```

Fine, you may need to get the output of netstat continuously till interrupt instruction is passed (**ctrl+c**).

```
[root@localhost ~]$ netstat -c
```

For more "**netstat**" command examples and usage, see the article 20 Netstat Command Examples.

43. Command: nslookup

A network utility program used to obtain information about Internet servers. As its name suggests, the utility finds name server information for domains by querying **DNS**.

```
[root@localhost ~]$ nslookup localhost.com



Server:           192.168.1.1

Address:    192.168.1.1#53



Non-authoritative answer:
```

```
Name: localhost.com

Address: 50.16.67.239
```

Query Mail Exchanger Record

```
[root@localhost ~]$ nslookup -query=mx localhost.com



Server:           192.168.1.1

Address:    192.168.1.1#53



Non-authoritative answer:

localhost.com     mail exchanger = 0
smtp.secureserver.net.

localhost.com     mail exchanger = 10
mailstore1.secureserver.net.



Authoritative answers can be found from:
```

Query Name Server

```
[root@localhost ~]$ nslookup -type=ns localhost.com
```

```
Server:           192.168.1.1

Address:    192.168.1.1#53



Non-authoritative answer:

localhost.com     nameserver = ns3404.com.

localhost.com     nameserver = ns3403.com.



Authoritative answers can be found from:
```

Query DNS Record

```
[root@localhost ~]$ nslookup -type=any localhost.com



Server:           192.168.1.1

Address:    192.168.1.1#53



Non-authoritative answer:

localhost.com     mail exchanger = 10
mailstore1.secureserver.net.

localhost.com     mail exchanger = 0
smtp.secureserver.net.
```

```
localhost.com     nameserver = ns06.domaincontrol.com.

localhost.com     nameserver = ns3404.com.

localhost.com     nameserver = ns3403.com.

localhost.com     nameserver = ns05.domaincontrol.com.



Authoritative answers can be found from:
```

Query Start of Authority

```
[root@localhost ~]$ nslookup -type=soa localhost.com



Server:           192.168.1.1

Address:    192.168.1.1#53



Non-authoritative answer:

localhost.com

      origin = ns3403.hostgator.com

      mail addr = dnsadmin.gator1702.hostgator.com

      serial = 2012081102

      refresh = 86400
```

```
        retry = 7200

        expire = 3600000

        minimum = 86400



Authoritative answers can be found from:
```

Query Port Number

Change the port number using which you want to connect

```
[root@localhost ~]$ nslookup -port 56 localhost.com



Server:           localhost.com

Address:    50.16.76.239#53



Name: 56

Address: 14.13.253.12
```

44. Command: dig

dig is a tool for querying **DNS** nameservers for information about host addresses, mail exchanges, nameservers, and related information. This tool can be used from any Linux (**Unix**) or **Macintosh OS X** operating system. The most typical use of **dig** is to simply query a single host.

```
[root@localhost ~]$ dig localhost.com



; <<>> DiG 9.8.2rc1-RedHat-9.8.2-0.17.rc1.el6 <<>>
localhost.com

;; global options: +cmd

;; Got answer:

;; ->>HEADER<
```

Turn Off Comment Lines

```
[root@localhost ~]$ dig localhost.com +nocomments



; <<>> DiG 9.8.2rc1-RedHat-9.8.2-0.17.rc1.el6 <<>>
localhost.com +nocomments

;; global options: +cmd

;localhost.com.                 IN    A

localhost.com.          14400 IN    A     40.216.66.239

;; Query time: 418 msec

;; SERVER: 192.168.1.1#53(192.168.1.1)

;; WHEN: Sat Jun 29 13:53:22 2013
```

```
;; MSG SIZE  rcvd: 45
```

Turn Off Authority Section

```
[root@localhost ~]$ dig localhost.com +noauthority



; <<>> DiG 9.8.2rc1-RedHat-9.8.2-0.17.rc1.el6 <<>>
localhost.com +noauthority

;; global options: +cmd

;; Got answer:

;; ->>HEADER<
```

Turn Off Additional Section

```
[root@localhost ~]$ dig  localhost.com +noadditional



; <<>> DiG 9.9.2-P1 <<>> localhost.com +noadditional

;; global options: +cmd

;; Got answer:

;; ->>HEADER<
```

Turn Off Stats Section

```
[root@localhost ~]$ dig localhost.com +nostats



; <<>> DiG 9.8.2rc1-RedHat-9.8.2-0.17.rc1.el6 <<>>
localhost.com +nostats

;; global options: +cmd

;; Got answer:

;; ->>HEADER<
```

Turn Off Answer Section

```
[root@localhost ~]$ dig localhost.com +noanswer



; <<>> DiG 9.8.2rc1-RedHat-9.8.2-0.17.rc1.el6 <<>>
localhost.com +noanswer

;; global options: +cmd

;; Got answer:

;; ->>HEADER<
```

Disable All Section at Once

```
[root@localhost ~]$ dig localhost.com +noall



```

```
; <<>> DiG 9.8.2rc1-RedHat-9.8.2-0.17.rc1.el6 <<>>
localhost.com +noall

;; global options: +cmd
```

45. Command: uptime

You have just connected to your **Linux Server Machine** and founds Something unusual or malicious, what you will do? Guessing…. NO, definitely not you could run **uptime** to verify what happened actually when the server was unattended.

```
[root@localhost ~]$ uptime



14:37:10 up  4:21,  2 users,  load average: 0.00, 0.00,
0.04
```

46. Command: wall

one of the most important command for administrator, **wall** sends a message to everybody logged in with their **mesg** permission set to "**yes**". The message can be given as an argument to **wall**, or it can be sent to wall's standard input.

```
[root@localhost ~]$ wall "we will be going down for
maintenance for one hour sharply at 03:30 pm"



Broadcast message from root@localhost.localdomain (pts/0)
(Sat Jun 29 14:44:02 2013):
```

```
we will be going down for maintenance for one hour
sharply at 03:30 pm
```

47. command: mesg

Lets you control if people can use the “**write**” command, to send text to you over the screen.

```
mesg [n|y]
n - prevents the message from others popping up on the
screen.
y – Allows messages to appear on your screen.
```

48. Command: write

Let you send text directly to the screen of another Linux machine if ‘**mesg**’ is ‘**y**’.

```
[root@localhost ~]$ write ravisaive
```

49. Command: talk

An enhancement to **write** command, **talk** command lets you talk to the logged in users.

```
[root@localhost ~]$ talk ravisaive
```

Note: If **talk** command is not installed, you can always **apt** or **yum** the required packages.

```
[root@localhost ~]$ yum install talk

OR
```

```
[root@localhost ~]$ apt-get install talk
```

50. Command: w

what command '**w**' seems you funny? But actually it is not. t's a command, even if it's just one letter long! The command "**w**" is a combination of **uptime** and **who** commands given one immediately after the other, in that order.

```
[root@localhost ~]$ w



15:05:42 up  4:49,  3 users,  load average: 0.02, 0.01,
0.00

USER     TTY      FROM              LOGIN@   IDLE   JCPU
PCPU WHAT

server   tty7     :0                14:06    4:43m  1:42
0.08s pam: gdm-passwo

server   pts/0    :0.0              14:18    0.00s  0.23s
1.65s gnome-terminal

server   pts/1    :0.0              14:47    4:43   0.01s
0.01s bash
```

51. Command: rename

As the name suggests, this command rename files. rename will rename the specified files by replacing the first occurrence from the file name.

```
Give the file names a1, a2, a3, a4.....1213
```

Just type the command.

```
 rename a1 a0 a?

 rename a1 a0 a??
```

52. Command: top

Displays the processes of **CPU**. This command refresh automatically, by default and continues to show **CPU** processes unless interrupt-instruction is given.

```
[root@localhost ~]$ top



top - 14:06:45 up 10 days, 20:57,  2 users,  load
average: 0.10, 0.16, 0.21

Tasks: 240 total,   1 running, 235 sleeping,   0 stopped,
4 zombie

%Cpu(s):  2.0 us,  0.5 sy,  0.0 ni, 97.5 id,  0.0 wa,
0.0 hi,  0.0 si,  0.0 st

KiB Mem:   2028240 total,  1777848 used,   250392 free,
81804 buffers

KiB Swap:  3905532 total,   156748 used,  3748784 free,
381456 cached



  PID USER      PR  NI  VIRT  RES  SHR S  %CPU %MEM
TIME+ COMMAND
```

```
23768 ravisaiv  20   0 1428m 571m  41m S   2.3 28.9
14:27.52
firefox

24182 ravisaiv  20   0  511m 132m  25m S   1.7  6.7
2:45.94 plugin-containe

26929 ravisaiv  20   0  5344 1432  972 R   0.7  0.1
0:00.07 top

24875 ravisaiv  20   0  263m  14m  10m S   0.3  0.7
0:02.76
lxterminal

    1 root      20   0  3896 1928 1228 S   0.0  0.1
0:01.62 init

    2 root      20   0     0    0    0 S   0.0  0.0
0:00.06 kthreadd

    3 root      20   0     0    0    0 S   0.0  0.0
0:17.28 ksoftirqd/0

    5 root       0 -20     0    0    0 S   0.0  0.0
0:00.00 kworker/0:0H

    7 root       0 -20     0    0    0 S   0.0  0.0
0:00.00 kworker/u:0H

    8 root      rt   0     0    0    0 S   0.0  0.0
0:00.12 migration/0

    9 root      20   0     0    0    0 S   0.0  0.0
0:00.00 rcu_bh

   10 root      20   0     0    0    0 S   0.0  0.0
0:26.94 rcu_sched

   11 root      rt   0     0    0    0 S   0.0  0.0
0:01.95 watchdog/0
```

```
   12 root      rt   0     0    0    0 S   0.0  0.0
0:02.00
watchdog/1

   13 root      20   0     0    0    0 S   0.0  0.0
0:17.80 ksoftirqd/1

   14 root      rt   0     0    0    0 S   0.0  0.0
0:00.12 migration/1

   16 root       0 -20     0    0    0 S   0.0  0.0
0:00.00
kworker/1:0H

   17 root       0 -20     0    0    0 S   0.0  0.0
0:00.00 cpuset

   18 root       0 -20     0    0    0 S   0.0  0.0
0:00.00 khelper

   19 root      20   0     0    0    0 S   0.0  0.0
0:00.00 kdevtmpfs

   20 root       0 -20     0    0    0 S   0.0  0.0
0:00.00 netns

   21 root      20   0     0    0    0 S   0.0  0.0
0:00.04 bdi-default

   22 root       0 -20     0    0    0 S   0.0  0.0
0:00.00 kintegrityd

   23 root       0 -20     0    0    0 S   0.0  0.0
0:00.00
kblockd

   24 root       0 -20     0    0    0 S   0.0  0.0
0:00.00 ata_sff
```

56. Command: free

Keeping track of memory and resources is as much important, as any other task performed by an administrator, and '**free**' command comes to rescue here.

Current Usage Status of Memory

```
[root@localhost ~]$ free

             total       used       free     shared
buffers     cached

Mem:       2028240    1788272     239968          0
69468     363716

-/+ buffers/cache:    1355088     673152

Swap:      3905532     157076    3748456
```

Tuned Output in KB, or MB, or GB

```
[root@localhost ~]$ free -b

             total       used       free     shared
buffers     cached

Mem:    2076917760 1838272512  238645248          0
71348224  372670464

-/+ buffers/cache: 1394253824  682663936
```

```
Swap:   3999264768  160845824 3838418944

[root@localhost ~]$ free -k



             total       used       free     shared
buffers     cached

Mem:       2028240    1801484     226756          0
69948     363704

-/+ buffers/cache:    1367832     660408

Swap:      3905532     157076    3748456

[root@localhost ~]$ free -m



             total       used       free     shared
buffers     cached

Mem:          1980       1762        218          0
68        355

-/+ buffers/cache:       1338        641

Swap:         3813        153       3660

[root@localhost ~]$ free -g



             total       used       free     shared
buffers     cached
```

```
Mem:              1          1          0          0
0          0

-/+ buffers/cache:          1          0

Swap:             3          0          3
```

Check Current Usage in Human Readable Format

```
[root@localhost ~]$ free -h



             total       used       free     shared
buffers     cached

Mem:           1.9G       1.7G       208M         0B
68M       355M

-/+ buffers/cache:       1.3G       632M

Swap:          3.7G       153M       3.6G
```

Check Status Contineously After Regular Interval

```
[root@localhost ~]$ free -s 3



             total       used       free     shared
buffers     cached

Mem:       2028240    1824096     204144          0
70708     364180
```

```
-/+ buffers/cache:    1389208     639032

Swap:       3905532     157076    3748456



             total       used       free     shared
buffers     cached

Mem:         2028240    1824192     204048          0
70716     364212

-/+ buffers/cache:    1389264     638976

Swap:       3905532     157076    3748456
```

59. Command: paste

Merge two or more text files on lines using. Example. If the content of file1 was:

```
1

2

3



and file2 was:



a

b
```

```
c

d

the resulting file3 would be:



1    a

2    b

3    c

     d
```