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Linux basic commands

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Below is a summary of the most widely used Linux commands.
In the final part I put references to the internet [lists](#) more comprehensive.

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Release of LINUX in use

uname -a

or

uname -r

UP

What is the Name of LINUX that you use

cat /etc/issue

or

lsb_release -a

UP

su

By this command is possible enter in Super User mode, sometime is necessary use the command: **sudo su**

Dopo aver dato il comando su, ci verrà chiesta la password.

The indication that we are Super User is the character: #
at the end of the prompt line.

example:

```
root@enrico-MM061:/home/enrico#
```

For exit from the super user mode use the command: **exit**

UP

df -h

It tells us the disk space (or SD on embedded systems) and the usage of it.

UP

free -m

It tell us the size of the RAM and the usage of it.

UP

top

It tell us the CPU usage and who using it.

For exit use the command: **ctrl+c**

UP

-

top

It tell us the active process in real time.
For exit press: ctrl + C

ps aux

It tell us the active process and also show us the relative PID.

ps -ef | grep python

It tell us the active PYTHON process.

Below an example, in the red box there are the PID numbers.

```
pi@rpi1 ~/PY $ ps -ef | grep python
root      2972    2917    0 02:47 pts/0    00:00:00 sudo python P1.py
root      2973    2972    2 02:47 pts/0    00:00:00 python P1.py
pi        2975    2917    0 02:47 pts/0    00:00:00 grep --color=auto python
pi@rpi1 ~/PY $
```

UP

kill

It is used to terminate the active process.

kill <process_number (Num.PID)>

If the process is not generated by you, for kill it use the command: **sudo kill Num.PID**

If the process is hard to terminate, use the command: **sudo kill -9 Num.PID**

UP

pstree

It show the tree process.

UP

cat /proc/cpuinfo

It show the HW version

UP

lsusb

It show the USB device connected to your PC

[UP](#)

ls -l

It show the contents of the directory where you are.

ls -alp

It similar to ls -l but plus it show the iden files.

Examples of ls -l

```
0123456789 A B   C   D   E   F
```

```
drwxrwxr-x 2 enrico enrico 4096  gen 6 2013 CNC
```

```
-rw-rw-r-- 1 enrico enrico 307018 set 22 00:07 C:\nppdf32Log\debuglog.txt
```

From left to right, below, the explanation of the result.

0) it tell us if is a file or a directory (d)

1...9) it tell us the permission and means:

r reading

w writing

x execution

- not assigned

The permission are grouped for:

1,2,3) permissions assigned to the **owner**

4,5,6) permissions assigned to the **group**

7,8,9) permissions assigned to all the users

A) indicates the number of connections to the component while for folders indicates the number of extra blocks.

B) it is the name of the owner of the file or the directory.

C) is the group membership

D) dimensions

E) date and time of creation or last modification

chmod

It is used to change the permission on files.
In the example below we gave all, all permissions.

chmod a=rwx <nome_file>

a = all

u = owner

g = group

o = other user

r = read

w = write

x = execution

chmod -R <permission> <directory>

It is used to change the directory permission and also the permission on all the files that are in the directory.

The example below gives to all, all permissions:

chmod -R 777 <directory>

UP

chown <owner or group> <file_name>

It is used to change the proprietary of the files

UP

cp <source_file> <destination_file>

It is used to copy file

UP

rm <file_name>

It is use to delete the file

UP

rm -r <directory_name>

It is use to delete the directory

UP

mv <name1> <name2>

<name1> <name2> is file or directory, it is possible that before use this command **is necessary login as super user sudo mv <name1> <name2>**

UP

cat

Display text files, copy, etc.

Display text files on screen.
Copy text files.
Combine text files.
Create new text files.

To display text file use the command: **cat** <file_name>

UP

cron

This is a scheduler that allows you to run commands at scheduled times or to repeat it with fixed intervals.

See here:

<http://en.wikipedia.org/wiki/Cron>

and [here](#).

To see my example look [here](#).

UP

nano <file_name>

It allows us to modify the specified file using the nano editor.

UP

sudo apt-get install <package>

It is used to install the packages.

EXAMPLE:

sudo apt-get install gedit

Install gedit

sudo apt-get remove <package>

Remove the package and all dependencies not used from other packages.

sudo apt-get remove <package>

Remove all dependencies not more used from the package.

sudo apt-get purge <package>

Similar to `apt-get remove`, but also remove the configuration files related to the package.

sudo apt-get update

It allows us to update the packages in our system.

If a package requires the installation or removal of new dependencies the package will not be updated by the update command.

To effect these changes will also have to use **upgrade** command (see below).

sudo apt-get upgrade

Upgrading new packages that require installation or removal of new dependencies.

It 'a good idea to give commands in the sequence show below:

sudo apt-get update

and then

sudo apt-get upgrade

sudo apt-get clean

Removes the files are no longer used in our system.

sudo apt-get autoremove

Removes files marked as no longer used

sudo apt-cache search <word>

It is use for find a packages that contain the specified word

sudo apt-cache show <package>

This command show the information regarding the package

sudo apt-cache depends <package>

This command show the packages that are necessary for a package.

sudo apt-cache showpkg <package>

This command show the version, the reverse depends and the dependencies of a package

Example:

```
pi@rpi1 ~/Utility/WiFi $ sudo apt-cache showpkg nano
Package: nano
Versions:
2.2.6-1 (/var/lib/apt/lists/mirrordirector.raspbian.org_raspbian_dists_wheezy_main_binary-armhf_Packages)
(/var/lib/dpkg/status)
```

Description Language:

File: /var/lib/apt/lists/mirrordirector.raspbian.org_raspbian_dists_wheezy_main_binary-armhf_Packages

MD5: b7e1d8c3d831118724cfe8ea3996b595

Reverse Depends:

junior-writing,nano

Dependencies:

2.2.6-1 - libc6 (2 2.4) libncursesw5 (2 5.6+20070908) libtinfo5 (0 (null)) dpkg (18 1.15.4) install-info (0 (null)) spell (0 (null)) pico (0 (null)) alpine-pico (1 2.00+dfsg-5) pico (0 (null))

Provides:

2.2.6-1 - editor

Reverse Provides:

pi@rpi1 ~/Utility/WiFi \$

UP

Manage your WiFi / Network

ifconfig

It is used to show the Internet interface, the WiFi interface si **wlan0**.

exampe:

```
pi@rpi1 ~ $ ifconfig
```

```
eth0    Link encap:Ethernet HWaddr b8:27:eb:8c:eb:ac  
        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: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
      UP LOOPBACK RUNNING  MTU:65536  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)
```

```
wlan0  Link encap:Ethernet  HWaddr 08:10:77:bc:17:d5
       inet addr:192.168.1.3  Bcast:192.168.1.255  Mask:255.255.255.0
       UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
       RX packets:2572 errors:0 dropped:5 overruns:0 frame:0
       TX packets:345 errors:0 dropped:0 overruns:0 carrier:0
       collisions:0 txqueuelen:1000
       RX bytes:273360 (266.9 KiB) TX bytes:56323 (55.0 KiB)
```

iwconfig

iwconfig command is similar to ifconfig command, but is dedicated to the Linux wireless interfaces.

It is used to manipulate the basic wireless parameters such as ssid, mode, channel, bit rates, encryption key, power and much more.

```
pi@rpi1 ~ $ iwconfig
```

```
wlan0  IEEE 802.11bg  ESSID:"Vodafone-26666521"  Nickname:"<WIFI@REALTEK>"
       Mode:Managed  Frequency:2.437 GHz  Access Point: 00:24:89:C5:FB:38
       Bit Rate:54 Mb/s   Sensitivity:0/0
```

```
Retry:off RTS thr:off Fragment thr:off  
Power Management:off  
Link Quality=100/100 Signal level=100/100 Noise level=0/100  
Rx invalid nwid:0 Rx invalid crypt:0 Rx invalid frag:0  
Tx excessive retries:0 Invalid misc:0 Missed beacon:0
```

lo no wireless extensions.

eth0 no wireless extensions.

cat /proc/net/wireless

watch -n 1 cat /proc/net/wireless

See link quality continuously on screen

Wavemon WiFi monitor

sudo apt-get install wavemon

sudo wavemon

wavemon is a monitoring application for wireless network devices

iwlist wlan0 scan

show all informations regarding the WiFi

[UP](#)

gparted

It is an utility use to manage the HD, SD card and USB card.
If your system is not installed, you can install it using the command:

sudo apt-get install gparted

For run it use the command: **gparted**

LINK:

- <http://it.wikipedia.org/wiki/GParted>
- <http://www.nerio.it/linux/aulataliercio/distro/fedoracore6/AULA-TALIERCIO/guide/howto-gparted.html>
- http://www.istitutomajorana.it/index.php?option=com_content&task=view&id=377&Itemid=33

UP

nmap

If nmap is not present on your PC, instal it using this command:

sudo apt-get install nmap

For find the IP of the PC, or of the SmartPhone, or of the RaspBerry Pi, etc, connected to your LAN network, open a terminal (on a PC) and use the command:

nmap -sP 192.168.1.1-255

obviously change the: **192.168.1.1**
and use the IP address for your Access Point or Router.

You receive an answer from the nmap command, similar to the image below.

```
Starting Nmap 5.21 ( http://nmap.org ) at 2013-12-27 01:53 CET
Nmap scan report for vodafone.station (192.168.1.1)
Host is up (0.00094s latency).
Nmap scan report for fritz.repeater.station (192.168.1.4)
Host is up (0.015s latency).
Nmap scan report for rpi1.station (192.168.1.5)
Host is up (0.0014s latency).
Nmap scan report for enricohp.station (192.168.1.7)
Host is up (0.0026s latency).
Nmap scan report for enrico-MM061.station (192.168.1.9)
Host is up (0.00028s latency).
Nmap scan report for DCS-930L-DestroCortile.station (192.168.1.10)
Host is up (0.0017s latency).
Nmap scan report for DCS-930L-Pedonale.station (192.168.1.11)
Host is up (0.0016s latency).
Nmap scan report for DCS-930L-SinistroCortile.station (192.168.1.12)
Host is up (0.0023s latency).
Nmap done: 255 IP addresses (8 hosts up) scanned in 3.33 seconds
```

My RaspBerry Pi name is: **rpi1.station** and the IP is: **192.168.1.5**

If you need to know the ports open on an IP address use the syntax below:

nmap 192.168.1.4 -p0-5000

of course, change the: **192.168.1.4**

with an appropriate IP address that you find in your IP Network

The: **0-5000**

is the port range that in the example I scanned.

-

Scanning Operating system on target IP, use the command below:

sudo nmap -O 192.168.1.4

of course, change the: **192.168.1.4**

with an appropriate IP address that you find in your IP Network

LINK:

- <http://www.tecmint.com/nmap-command-examples/>
- <http://linux.die.net/man/1/nmap>

UP

sensors

This is not a command but LINUX application that is launched from a terminal and it tells the CPU temperature.

For install it use the command below:

```
sudo apt-get install lm-sensors
```

for run it use the command below:

```
sensors
```

ATTENTION: On RaspBerry Pi to know the temperature of the cpu see [here](#).

[UP](#)

Serial terminal

I suggest **CuteCom** and **MiniCom**, they are available in your Software Center distribution.

UP

Convert package from RPM to DEB and vice versa

For do the conversion is necessary use **alien**.

If alien is not present on your distribution install it by this command: **sudo aptitude install alien**

Convert file from RPM to DEB

sudo alien <package.rpm>

Convert file from DEB to RPM

sudo alien -r <package.deb>

UP

LINK

- [http://linux.collectiontricks.it/wiki/Guida ai comandi base della shell in GNU/Linux](http://linux.collectiontricks.it/wiki/Guida_ai_comandi_base_della_shell_in_GNU/Linux)
- <http://www.mimante.net/doc/comandi.txt>
- <http://ss64.com/bash/>
- http://linuxcommand.org/lc3_learning_the_shell.php
- Shell Manuals and Linux Manuals:
<http://www.tldp.org/guides.html>
- **nmap**
 - <http://www.tecmint.com/nmap-command-examples/>
 - <http://linux.die.net/man/1/nmap>

UP
